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REMOVAL SUPPORT TEAM 2 EPA CONTRACT EP-W-06-072

RST 2-02-F-2667

## TRANSMITTAL MEMO

To:

Ángel Rodríguez, On-Scene Coordinator

Caribbean Environmental Protection Branch

U.S. EPA, Region II

From:

Smita Sumbaly, Data Reviewer

RST 2, Region II

Subject:

Puerto Rico Olefins Asbestos Site

**Data Validation Assessment** 

Date:

December 23, 2013

The purpose of this memo is to transmit the following information:

Data validation results for the following parameters:

Asbestos TEM

90 Samples

Matrices and Number of Samples

Wipe

84 Samples

Field/Lot Blanks

6 Samples

Sampling Dates:

December 12 and 13, 2013

The final data assessment narrative and original analytical data package are attached.

cc:

RST 2 SPM:

Carlos Huertas

RST 2 SITE FILE TDD #:

TO-0029-0122

ANALYTICAL TDD #:

TO-0029-0133

PCS#:

7133

### U.S. ENVIRONMENTAL PROTECTION AGENCY

### MEMORANDUM

DATE:

December 23, 2013

TO:

Ángel Rodríguez, On-Scene Coordinator

U.S. EPA, Region II

FROM:

**Smita Sumbaly** 

**RST 2 Data Review Team** 

**SUBJECT:** 

**QA/QC Compliance Review Summary** 

As requested quality control and performance measures for the data packages noted have been examined and compared to EPA standards for compliance. Measures for the following general areas were evaluated as applicable:

Data Completeness
Sample Collection, Holding Times, and Preservation
Blank Analysis
Sample Sensitivity
Monthly Report TEM Calibrations

Any statistical measures used to support the following conclusions are attached so that the review may be reviewed by others.

## Summary of Results

· · · · · · · · · · · · · · · · · · ·	I <u>Asbestos</u> <u>TEM</u>
Acceptable as Submitted	X
Acceptable with Comments Unacceptable, Action Pending	V
Unacceptable	

Data Reviewed by:

Juita Surfer

Date: /2/23//3

Approved By:

Sal

Date: 12/23/19

Area Code/Phone No.:

(732) 585-4410

## <u>NARRATIVE</u>

### PCS No. 7133

SITE NAME:

**Puerto Rico Olefins Asbestos Site** 

PR 385 KM 5.4 Int., 127 Tallaboa Ponente,

Ward Penuelas, Puerto Rico

Laboratory Name:

EMSL Analytical, Inc., 200 Route 130 North, Cinnaminson, New Jersey.

### **INTRODUCTION:**

The laboratory's portion of this case consisted of 90 wipe samples including five field blanks and one lot blank sample. All samples were collected on December 12 and 13, 2013. The EMSL Order ID numbers are 041333714, 041333715, 041333716, 041333718, and 041333720.

The laboratory reported No problem(s) with the receipt of these samples.

The laboratory reported problems with the analyses of <u>Asbestos TEM</u>: <u>Due to excessive particulate the analytical sensitivity of 260 structure/square centimeter (str/cm<sup>2</sup>) as required by the method was not reached for wipe samples.</u>

The evaluator has commented on the criteria specified under each fraction heading. All criteria have been assessed, but no discussion is given where the evaluator has determined that criteria were adequately performed or require no comment. Details relevant to these comments are given on the following forms.

Appropriate Form Is and Chain of Custody have been copied from the original data package and appended to the data assessment narrative for reference.

RFP #: 272D/Task#: 7133 Site: Puerto Rico Olefins Asbestos Site

Lab: EMSL Analytical, Inc. Matrix/No. of Samples: Wipe/90

SDG#'s: 041333714, 041333715, Reviewer: SMITA SUMBALY

041333716, 041333718, & 041333720

Contractor: WESTON-RST 2

A.2.1 Validation Flags-

The following flags have been applied in red by the data

validator and must be considered by the data user.

J- This flag indicates the result qualified as estimated.

Red-Line- A red-line drawn through a sample result indicates an

unusable value. The red-lined data are known to contain significant errors based on documented information and must

not be used by the data user.

Fully Usable Data-

The results that do not carry "J" or "red-line" are fully usable.

A.2.2 The data assessment is given below and on the attached sheets.

On December 12 and 13, 2013, U.S. EPA, Region II, RST 2 personnel collected 90 wipe samples, including one lot blank and five field blank samples, from the Puerto Rico Olefins Asbestos Site, located at PR 385 KM 5.4 Int., 127 Tallaboa Ponente, Ward Penuelas, Puerto Rico. On December 13, 2013, all samples were shipped via FedEx to EMSL Analytical, Inc., 200 Route 130 North, Cinnaminson, NJ. The laboratory verified that the samples were received intact and properly custody sealed.

Ninety wipe samples for asbestos were prepared and analyzed in accordance with Standard Test Method ASTM D6480-05 for Wipe Sampling of Surfaces, Indirect Preparation, and Analysis for Asbestos Structure Number Surface Loading by Transmission Electron Microscopy (TEM). Data was reported as asbestos structure/square centimeter with fiber sizing and counting.

TEM analysis was performed using a procedure from TEM ASTM D6480. The sizing of structures (analysis) was performed on either a JEOL 100CX II or JEOL 1200 EX microscope at approximately 19,000X magnification.

All the samples are reported as structure per square centimeter. The target analytical sensitivity for these samples were 260 structure/cm<sup>2</sup>. Due to excessive particulate the analytical sensitivity of 260 structure/cm<sup>2</sup> as required by the method was not reached. An aspect ratio of >5.1 was applied.

The laboratory reported the area of samples, asbestos type, asbestos structure, sensitivity, and concentration of asbestos detected. Results are provided in Table 1.

Client identification (ID) and laboratory ID numbers are as follows:

Client ID No.	Laboratory ID	Matrix	Sampling	Analysis
See A secretary of Artificial Const. (Silver See Artificial Const.)	No		Date	
EMSL Order No.:04133		***************************************		erin gen til men produkt skil i kan som en skil skil skil skil skil skil skil skil
FB1-121213	041333714-0001	Wipe	12/12/2013	Asbestos - TEM
LB-121213	041333714-0002	Wipe	.12/12/2013	Asbestos - TEM
P0002-CR01-WP01-01	041333714-0003	Wipe	12/12/2013	Asbestos - TEM
P0002-CR01-WP02-01	041333714-0004	Wipe	12/12/2013	Asbestos - TEM
P0002-CR01-WP03-01	041333714-0005	Wipe	12/12/2013	Asbestos - TEM
P0002-CR02-WP01-01	041333714-0006	Wipe	12/12/2013	Asbestos - TEM
P0002-CR02-WP02-01	041333714-0007	Wipe	12/12/2013	Asbestos - TEM
P0002-CR02-WP03-01	041333714-0008	Wipe	12/12/2013	Asbestos - TEM
P0002-CR03-WP01-01	041333714-0009	Wipe	12/12/2013	Asbestos - TEM
P0002-CR03-WP02-01	041333714-0010	Wipe	12/12/2013	Asbestos - TEM
P0002-CR03-WP03-01	041333714-0011	Wipe	12/12/2013	Asbestos - TEM
P0002-CR04-WP01-01	041333714-0012	Wipe	12/12/2013	Asbestos - TEM
P0002-CR04-WP02-01	041333714-0013	Wipe	12/12/2013	Asbestos - TEM
P0002-CR04-WP03-01	041333714-0014	Wipe	12/12/2013	Asbestos - TEM
P0002-CR05-WP01-01	041333714-0015	Wipe	12/13/2013	Asbestos - TEM
P0002-CR05-WP02-01	041333714-0016	Wipe	12/13/2013	Asbestos - TEM
P0002-CR05-WP03-01	041333714-0017	Wipe	12/13/2013	Asbestos - TEM
P0002-CR06-WP01-01	041333714-0018	Wipe	12/12/2013	Asbestos - TEM
P0002-CR06-WP02-01	041333714-0019	Wipe	12/12/2013	Asbestos - TEM
P0002-CR06-WP03-01	041333714-0020	Wipe	12/12/2013	Asbestos - TEM
P0002-CR07-WP01-01	041333714-0021	Wipe	12/13/2013	Asbestos - TEM
P0002-CR07-WP02-01	041333714-0022	Wipe	12/13/2013	Asbestos - TEM
EMSL Order No.:0413	33716			•
FB2-121213	041333716-0001	Wipe	12/12/2013	Asbestos - TEM
P0002-CR07-WP03-01	041333716-0002	Wipe	12/13/2013	Asbestos - TEM
P0002-CR08-WP01-01	041333716-0003	Wipe	12/13/2013	Asbestos - TEM
P0002-CR08-WP02-01	041333716-0004	Wipe	12/13/2013	Asbestos - TEM
P0002-CR08-WP03-01	041333716-0005	Wipe	12/13/2013	Asbestos - TEM
P0002-CR09-WP01-01	041333716-0006	Wipe	12/12/2013	Asbestos - TEM
P0002-CR09-WP02-01	041333716-0007	Wipe	12/12/2013	Asbestos - TEM
P0002-CR09-WP03-01	041333716-0008	Wipe	12/12/2013	Asbestos - TEM
P0002-CR10-WP01-01	041333716-0009	Wipe	12/12/2013	Asbestos - TEM
P0002-CR10-WP02-01	041333716-0010	Wipe	12/12/2013	Asbestos - TEM
P0002-CR10-WP03-01	041333716-0011	Wipe	12/12/2013	Asbestos - TEM
P0002-CR11-WP01-01	041333716-0012	Wipe	12/13/2013	Asbestos - TEM
P0002-CR11-WP02-01	041333716-0013	Wipe	12/13/2013	Asbestos - TEM

				•
Client ID No.	<b>Laboratory</b>	<u>Matrix</u> :	Sampling	<u>Analysis</u>
	ID No		Date	A STATE OF THE STA
P0002-CR11-WP03-01	041333716-0014	Wipe	12/13/2013	Asbestos - TEM
P0002-CR12-WP01-01	041333716-0015	Wipe	12/12/2013	Asbestos - TEM
P0002-CR12-WP02-01	041333716-0016	Wipe	12/12/2013	Asbestos - TEM
P0002-CR12-WP03-01	041333716-0017	Wipe	12/12/2013	Asbestos - TEM
P0002-CR13-WP01-01	041333716-0018	Wipe	12/12/2013	Asbestos - TEM
P0002-CR13-WP02-01	041333716-0019	Wipe	12/12/2013	Asbestos - TEM
P0002-CR13-WP03-01	041333716-0020	Wipe	12/12/2013	Asbestos - TEM
P0002-CR14-WP01-01	041333716-0021	Wipe	12/12/2013	Asbestos - TEM
. EMSL Order No.:0413	33715			
FB3-121213	041333715-0001	Wipe	12/12/2013	Asbestos - TEM
P0002-CR14-WP02-01	041333715-0002	Wipe	12/12/2013	Asbestos - TEM
P0002-CR14-WP03-01	041333715-0003	Wipe	12/12/2013	Asbestos - TEM
P0002-CR15-WP01-01	041333715-0004	Wipe	12/12/2013	Asbestos - TEM
P0002-CR15-WP02-01	041333715-0005	Wipe	12/12/2013	Asbestos - TEM
P0002-CR15-WP03-01	041333715-0006	Wipe	12/12/2013	Asbestos - TEM
P0002-CR16-WP01-01	041333715-0007	Wipe	12/12/2013	Asbestos - TEM
P0002-CR16-WP02-01	041333715-0008	Wipe	12/12/2013	Asbestos - TEM
P0002-CR16-WP03-01	041333715-0009	Wipe	12/12/2013	Asbestos - TEM
P0002-CR17-WP01-01	041333715-0010	Wipe	12/12/2013	Asbestos - TEM
P0002-CR17-WP02-01	041333715-0011	Wipe	12/12/2013	Asbestos - TEM
P0002-CR17-WP03-01	041333715-0012	Wipe	12/12/2013	Asbestos - TEM
P0002-CR18-WP01-01	041333715-0013	Wipe	12/13/2013	Asbestos - TEM
P0002-CR18-WP02-01	041333715-0014	Wipe	12/13/2013	Asbestos - TEM
P0002-CR18-WP03-01	041333715-0015	Wipe	12/13/2013	Asbestos - TEM
P0002-CR19-WP01-01	041333715-0016	Wipe	12/12/2013	Asbestos - TEM
P0002-CR19-WP02-01	041333715-0017	Wipe	12/12/2013	Asbestos - TEM
P0002-CR19-WP03-01	041333715-0018	Wipe	12/12/2013	Asbestos - TEM
P0002-CR20-WP01-01	041333715-0019	Wipe	12/12/2013	Asbestos - TEM
P0002-CR20-WP02-01	041333715-0020	Wipe	12/12/2013	Asbestos - TEM
P0002-CR20-WP03-01	041333715-0021	Wipe	12/12/2013	Asbestos - TEM
. EMSL Order No.:041.	333720		•	
FB1-121313	041333720-0001	Wipe	12/13/2013	Asbestos - TEM
P0002-CR21-WP01-01	041333720-0002	Wipe	12/12/2013	Asbestos - TEM
P0002-CR21-WP02-01	041333720-0003	Wipe	12/12/2013	Asbestos - TEM
P0002-CR21-WP03-01	041333720-0004	Wipe	12/12/2013	Asbestos - TEM
P0002-CR22-WP01-01	041333720-0005	Wipe	12/12/2013	Asbestos - TEM
P0002-CR22-WP02-01	041333720-0006	Wipe	12/12/2013	Asbestos - TEM
P0002-CR22-WP03-01	041333720-0007	Wipe	12/12/2013	Asbestos - TEM
P0002-CR23-WP01-01	041333720-0008	Wipe	12/12/2013	Asbestos - TEM
P0002-CR23-WP02-01	041333720-0009	Wipe	12/12/2013	Asbestos - TEM
P0002-CR23-WP03-01	041333720-0010	Wipe	12/12/2013	Asbestos - TEM

Client ID No.	Laboratory ID	Matr	Sampling	Analysis
	No	<u>ix</u>	Date	And the second of the first of the second of
P0002-CR24-WP01-01	041333720-0011	Wipe	12/12/2013	Asbestos - TEM
P0002-CR24-WP02-01	041333720-0012	Wipe	12/12/2013	Asbestos - TEM
P0002-CR24-WP03-01	041333720-0013	Wipe	12/12/2013	Asbestos - TEM
P0002-CR25-WP01-01	041333720-0014	Wipe	12/13/2013	Asbestos - TEM
P0002-CR25-WP02-01	041333720-0015	Wipe	12/13/2013	Asbestos - TEM
P0002-CR25-WP03-01	041333720-0016	Wipe	12/13/2013	Asbestos - TEM
P0002-CR26-WP01-01	041333720-0017	Wipe	12/13/2013	Asbestos - TEM
P0002-CR26-WP02-01	041333720-0018	Wipe	12/13/2013	Asbestos - TEM
P0002-CR26-WP03-01	041333720-0019	Wipe	12/13/2013	Asbestos - TEM
P0002-CR28-WP01-01	041333720-0020	Wipe	12/13/2013	Asbestos - TEM
P0002-CR28-WP02-01	041333720-0021	Wipe	12/13/2013	Asbestos - TEM
EMSL Order No.:041	1333718			
FB2-121313	041333718-0001	Wipe	12/13/2013	Asbestos - TEM
P0002-CR28-WP03-01	041333718-0002	Wipe	12/13/2013	Asbestos - TEM
P0002-CR29-WP01-01	041333718-0003	Wipe	12/13/2013	Asbestos - TEM
P0002-CR29-WP02-01	041333718-0004	Wipe	12/13/2013	Asbestos - TEM
P0002-CR29-WP03-01	041333718-0005	Wipe	12/13/2013	Asbestos - TEM

## Asbestos analysis of Wipe via TEM ASTM Method D6480-05:

Ninety wipe samples were analyzed by ASTM Method D6480-05 for asbestos structure number surface loading by TEM. Data was reported as asbestos structure/square centimeter.

### EMSL Order No.:041333714

Twenty-two wipe samples were collected, including one field blank and one lot blank sample. Chrysotile asbestos was detected in all the field samples, except sample no. P0002-CR06-WP02-01. All field samples concentrations were reported between 1940 str/cm² to 48500 str/cm² chrysotile asbestos. Field blank, lot blank samples, and non-detect samples were reported as <2.99 asbestos structures.

Laboratory reported that due to excessive particulate the analytical sensitivity of 260 str/cm<sup>2</sup> as required by the method was not reached.

For QC purposes, the laboratory analyzed a two lab blanks, daily and monthly report for calibration standards and two inter-analyses. All QC results are acceptable.

### EMSL Order No.:041333715

Twenty-one wipe samples were collected, including one field blank sample. Out of 20 field samples, chrysotile asbestos was detected in 12 field samples. Field samples concentrations were reported between 7760 str/cm<sup>2</sup> to 363000 str/cm<sup>2</sup> chrysotile asbestos. Field blank and other eight non-detect

field samples were reported as <2.99 asbestos structures.

Laboratory reported that due to excessive particulate the analytical sensitivity of 260 str/cm<sup>2</sup> as required by the method was not reached.

For QC purposes, the laboratory analyzed a one lab blank, daily and monthly report for calibration standards, one inter-analyst, and one intra-analyst QC samples. All QC results are acceptable.

### EMSL Order No.:041333716

Twenty-one wipe samples were collected, including one field blank sample. Chrysotile asbestos was detected in all the field samples, except sample no. P0002-CR13-WP03-01. All field samples concentrations were reported between 1460 str/cm<sup>2</sup> to 194000 str/cm<sup>2</sup> chrysotile asbestos. Field blank and non-detect samples were reported as <2.99 asbestos structures.

Laboratory reported that due to excessive particulate the analytical sensitivity of 260 str/cm<sup>2</sup> as required by the method was not reached.

For QC purposes, the laboratory analyzed a one lab blanks, daily and monthly report for calibration standards, one intra-analyst, and two inter-analyst QC samples. All QC results are acceptable.

### EMSL Order No.:041333720

Twenty-one wipe samples were collected, including one field blank sample. Chrysotile asbestos was detected in eight field samples. Field samples concentrations for eight samples were reported between 2910 str/cm² to 257000 str/cm² chrysotile asbestos. Field blank and other 12 non-detect samples were reported as <2.99 asbestos structures.

Laboratory reported that due to excessive particulate the analytical sensitivity of 260 str/cm<sup>2</sup> as required by the method was not reached.

For QC purposes, the laboratory analyzed a one lab blanks, daily and monthly report for calibration standards, one intra-analyst, and one inter-analyst QC samples. All QC results are acceptable.

### EMSL Order No.:041333718

Five wipe samples were collected, including one field blank sample. Chrysotile asbestos was detected in all four field samples. All field samples concentrations were reported between 1460 str/cm² to 19400 str/cm² chrysotile asbestos. Field blank was reported as <2.99 asbestos structures.

Laboratory reported that due to excessive particulate the analytical sensitivity of 260 str/cm<sup>2</sup> as required by the method was not reached.

For QC purposes, the laboratory analyzed a one lab blanks, daily and monthly report for calibration standards, one intra-analyst QC samples. All QC results are acceptable.

### **TEM Equipment Performance Check**

The laboratory performed monthly report for TEM calibrations which includes Chrysotile Beam Dose sensitivity (quarterly), Camera Constant calibrations, Plasma Asher Calibration, Magnification Calibrations, Spot Size Measurements (Quarterly), K Factors (Semi-annually), Detector Resolution(Semi-annually/Quarterly), Significant Na and resolvable Mg-Si Peaks (Quarterly), and daily TEM Calibrations. All calibrations met the "pass" criteria. No qualifiers were applied based upon this parameter.

The results presented for the air samples are acceptable as reported. No qualifications were required.

## A.2.3 Contract Problem/Non-Compliance:

None

Contractor Reviewer:

Signature.

<u> 2123/13</u>

Verified by:

Signature:

12/27/13 Date

**Project: Puerto Rico Olefins Asbestos Site** 

Sampling Dates: December 12 and 13, 2013

Standard Test Methods for Wipe Sampling of Surfaces, Indirect Preparation, and Analysis for Asbestos Structure Number Surface Loading by Transmission Electron Microscopy - D6480-05

Client Sample ID Number	Laboratory Sample ID Number	Area Sampled (cm²)	Asbestos Type	Asbestos Structures	Sensitivity (str/cm <sup>2</sup> )	Concentration (str/cm2)
FB1-121213	041333714-0001	NA	None Detected	<2.99	-	-
LB-121213	041333714-0002	NA	None Detected	<2.99	. =	_
P0002-CR01-WP01-01	041333714-0003	100	Chrysotile	3	970	2910
P0002-CR01-WP02-01	041333714-0004	100	Chrysotile	19	970	18400
P0002-CR01-WP03-01	041333714-0005	100	Chrysotile	25	1940	48500
P0002-CR02-WP01-01	041333714-0006	100	Chrysotile	- 11	970	10700
P0002-CR02-WP02-01	041333714-0007	100	Chrysotile	5	970	4850
P0002-CR02-WP03-01	041333714-0008	100	Chrysotile	6	970	5820
P0002-CR03-WP01-01	041333714-0009	100	Chrysotile	<2.99	1940	<5800
P0002-CR03-WP02-01	041333714-0010	100	Chrysotile	<2.99	4850	<14500
P0002-CR03-WP03-01	041333714-0011	100	Chrysotile	20	485	9700
P0002-CR04-WP01-01	041333714-0012	100	Chrysotile	20	485	9700
P0002-CR04-WP02-01	041333714-0013	100	Chrysotile	43	485	20900
P0002-CR04-WP03-01	041333714-0014	100	Chrysotile	10	485	4850
P0002-CR05-WP01-01	041333714-0015	100	Chrysotile	24	970	23300
P0002-CR05-WP02-01	041333714-0016	100	Chrysotile	13	970	12600
P0002-CR05-WP03-01	041333714-0017	100	Chrysotile	30	485	14600
P0002-CR06-WP01-01	041333714-0018	100	Chrysotile	19	485	9220
P0002-CR06-WP02-01	041333714-0019	100	None Detected	<2.99	. 486	<1450
P0002-CR06-WP03-01	041333714-0020	100	Chrysotile	27	486	13100
P0002-CR07-WP01-01	041333714-0021	100	Chrysotile	27	486	13100
P0002-CR07-WP02-01	041333714-0022	100	Chrysotile	4	486	1940

NA - Not Applicable str/cm² - Structure/Centimeter Square

**Project: Puerto Rico Olefins Asbestos Site** 

Sampling Dates: December 12 and 13, 2013

Standard Test Methods for Wipe Sampling of Surfaces, Indirect Preparation, and Analysis for Asbestos Structure Number Surface Loading by Transmission Electron Microscopy - D6480-05

Client Sample ID Number	Laboratory Sample ID Number	Area Sampled (cm²)	Asbestos Type	Asbestos Structures	Sensitivity (str/cm²)	Concentration (str/cm2)
FB2-121213	041333716-0001	NA .	None Detected	<2.99	<u>-</u>	_
P0002-CR07-WP03-01	041333716-0002	100	Chrysotile	9	485	4370
P0002-CR08-WP01-01	041333716-0003	100	Chrysotil <b>e</b>	4	485	1940
P0002-CR08-WP02-01	041333716-0004	100	Chrysotile	6	485	2910
P0002-CR08-WP03-01	041333716-0005	100	Chrysotile	5	485	2430
P0002-CR09-WP01-01	041333716-0006	100	Chrysotil <b>e</b>	8	970	7760
P0002-CR09-WP02-01	041333716-0007	100	Chrysotile	7	485	3400
P0002-CR09-WP03-01	041333716-0008	100	Chrysotile	12	485	5820
P0002-CR10-WP01-01	041333716-0009	100	Chrysotile	20	9700	194000
P0002-CR10-WP02-01	041333716-0010	100	Chrysotile	15	9700	146000
P0002-CR10-WP03-01	041333716-0011	100	Chrysotile	22	970	21300
P0002-CR11-WP01-01	041333716-0012	100	Chrysotile	13	485	6310
P0002-CR11-WP02-01	041333716-0013	100	Chrysotile	11	485	5340
P0002-CR11-WP03-01	041333716-0014	100	Chrysotile	8	970	7760
P0002-CR12-WP01-01	041333716-0015	100	Chrysotile	12	485	5820
P0002-CR12-WP02-01	041333716-0016	100	Chrysotile	13	485	6310
P0002-CR12-WP03-01	041333716-0017	100	Chrysotile	13	970	12600
P0002-CR13-WP01-01	041333716-0018	100	Chrysotile	4	485	1940
P0002-CR13-WP02-01	041333716-0019	100	Chrysotile	3	485	1460
P0002-CR13-WP03-01	041333716-0020	100	None Detected	<2.99	485	<1450
P0002-CR14-WP01-01	041333716-0021	100	Chrysotile	13	646	8400

NA - Not Applicable str/cm² - Structure/Centimeter Square

Project: Puerto Rico Olefins Asbestos Site

Sampling Dates: December 12 and 13, 2013

Standard Test Methods for Wipe Sampling of Surfaces, Indirect Preparation, and Analysis for Asbestos Structure Number Surface Loading by Transmission Electron Microscopy - D6480-05

Client Sample ID Number	Laboratory Sample ID Number	Area Sampled (cm²)	Asbestos Type	Asbestos Structures	Sensitivity (str/cm²)	Concentration (str/cm2)
FB3-121213	041333715-0001	NA ·	None Detected	<2.99	-	
P0002-CR14-WP02-01	041333715-0002	100	Chrysotile	4	1940	7760
P0002-CR14-WP03-01	041333715-0003	100	Chrysotile	10	1940	19400
P0002-CR15-WP01-01	041333715-0004	100	Chrysotile	6	1940	11600
P0002-CR15-WP02-01	041333715-0005	100	Chrysotile	. 8	4860	38900
P0002-CR15-WP03-01	041333715-0006	100	None Detected	<2.99	4850	<14500
P0002-CR16-WP01-01	041333715-0007	100	None Detected	<2.99	9700	<29000
P0002-CR16-WP02-01	041333715-0008	100	None Detected	<2.99	1940	<5800
P0002-CR16-WP03-01	041333715-0009	100	Chrysotile	6 '	9710	58300
P0002-CR17-WP01-01	041333715-0010	100	Chrysotile	<2.99	4850	<14500
P0002-CR17-WP02-01	041333715-0011	100	None Detected	<2.99	1940	<5800
P0002-CR17-WP03-01	041333715-0012	100	Chrysotile	<2.99	1940	< 5800
P0002-CR18-WP01-01	041333715-0013	100	None Detected	<2.99	4850	<14500
P0002-CR18-WP02-01	041333715-0014	100	Chrysotile	4	4850	19400
P0002-CR18-WP03-01	041333715-0015	100	None Detected	<2.99	1940	<5800
P0002-CR19-WP01-01	041333715-0016	100	None Detected	<2.99	1940	<5800
P0002-CR19-WP02-01	041333715-0017	100	Chrysotile	<2.99	1940	<5800
P0002-CR19-WP03-01	041333715-0018	100	Chrysotile	15	24200	363000
P0002-CR20-WP01-01	041333715-0019	100	None Detected	<2.99	1940	<5800
P0002-CR20-WP02-01	041333715-0020	100	Chrysotile	<2.99	1940	<5800
P0002-CR20-WP03-01	041333715-0021	100	Chrysotile	5	1940	9700

NA - Not Applicable str/cm² - Structure/Centimeter Square

**Project: Puerto Rico Olefins Asbestos Site** 

Sampling Dates: December 12 and 13, 2013

Standard Test Methods for Wipe Sampling of Surfaces, Indirect Preparation, and Analysis for Asbestos Structure Number Surface Loading by Transmission Electron Microscopy - D6480-05

Client Sample ID Number	Laboratory Sample ID Number	Area Sampled (cm²)	Asbestos Type	Asbestos Structures	Sensitivity (str/cm²)	Concentration (str/cm2)
FB1-121313	041333720-0001	NA	None Detected	<2.99	-	
P0002-CR21-WP01-01	041333720-0002	100	None Detected	<2.99	485	<1450
P0002-CR21-WP02-01	041333720-0003	100	None Detected	<2.99	485	<1450
P0002-CR21-WP03-01	041333720-0004	100	None Detected	<2.99	485	<1450
P0002-CR22-WP01-01	041333720-0005	100	None Detected	<2.99	970	<2900
P0002-CR22-WP02-01	041333720-0006	100	None Detected	<2.99	485	<1450
P0002-CR22-WP03-01	041333720-0007	100	None Detected	<2.99	970	<2900
P0002-CR23-WP01-01	041333720-0008	100	None Detected	<2.99	970	<2900
P0002-CR23-WP02-01	041333720-0009	100	Chrysotile	<2.99	970	<2900
P0002-CR23-WP03-01	041333720-0010	100	Chrysotile	53	4850	257000
P0002-CR24-WP01-01	041333720-0011	100	None Detected	<2.99	485	<1450
P0002-CR24-WP02-01	041333720-0012	100	Chrysotile	8	970	7760
P0002-CR24-WP03-01	041333720-0013	100	Chrysotile	3	970	2910
P0002-CR25-WP01-01	041333720-0014	100	Chrysotile	. 5	1940	9700
P0002-CR25-WP02-01	041333720-0015	100	Chrysotile	9	1940	17500
P0002-CR25-WP03-01	041333720-0016	100	Chrysotile	4	970	3880
P0002-CR26-WP01-01	041333720-0017	100	Chrysotile	<2.99	485	<1450
P0002-CR26-WP02-01	041333720-0018	100	None Detected	<2.99	485	<1450
P0002-CR26-WP03-01	041333720-0019	100	None Detected	<2.99	485	<1450
P0002-CR28-WP01-01	041333720-0020	100	None Detected	<2.99	485	<1450
P0002-CR28-WP02-01	041333720-0021	100	None Detected	<2.99	485	<1450

NA - Not Applicable str/cm² - Structure/Centimeter Square

Project: Puerto Rico Olefins Asbestos Site

Sampling Date: December 13, 2013

Standard Test Methods for Wipe Sampling of Surfaces, Indirect Preparation, and Analysis for Asbestos Structure Number Surface Loading by Transmission Electron Microscopy - D6480-05

Client Sample ID Number	Laboratory Sample ID Number	Area Sampled (cm²)	Asbestos Type	Asbestos Structures	Sensitivity (str/cm²)	Concentration (str/cm2)
FB2-121313	041333718-0001	NA	None Detected	<2.99	-	-
P0002-CR28-WP03-01	041333718-0002	100	Chrysotile	10	485	4850
P0002-CR29-WP01-01	041333718-0003	100	Chrysotile	10	1940	19400
P0002-CR29-WP02-01	041333718-0004	100	Chrysotile	. 8	485	3880
P0002-CR29-WP03-01	041333718-0005	100	Chrysotile	3	485	1460

NA - Not Applicable str/cm² - Structure/Centimeter Square





EMSL ANALYTICAL, INC. 200 RT. 130 NORTH CINNAMINSON, NJ 08077

PHONE: (800) 220-3675 FAX: (856) 786-0235

December 18, 2013

Smita Sumbaly Weston Solutions 1090 King Georges Post Road Suite 201 Edison, NJ 08837 732-585-4400

Re: Narrative TEM ASTM 6480 041333714; RFP #: 272D, Site #:0029-0122

Dear Smita:

On December 14, 2013, EMSL Analytical, Inc. in Cinnaminson, NJ received twenty-two (22) wipe samples via overnight carrier from Weston Solutions for asbestos content analysis via TEM ASTM 6480. The samples were logged in following normal lab procedures. Samples were received under Chain of Custody and in good condition.

### **TEM ASTM D6480**

Samples are prepared by rinsing the sampling wipe and sample bag into a clean 500 mL specimen container. The specimen cup is filled with 400 mL of deionized water and the pH is adjusted to 3-4 with acetic acid. Once the desired pH is achieved the final volume is brought up to 500 mL. Multiple dilutions of each sample are filtered through a 47 mm MCE filtration apparatus. The filter is dried in a petri dish. A portion of the filter is prepared through a direct transfer technique. This technique requires the collapse of a filter wedge onto a microscope slide with hot acetone vapor. The collapsed filter is then etched to remove the top 5% of the filter and a thin layer of carbon deposited on the filter. The carbon coated filter is placed on top of a copper mesh TEM Grid and the filter polymer is wicked away in an acetone bath.

Samples were analyzed by Transmission Electron Microscopy (TEM) via ASTM D6480-05. All data was reported as structures per square centimeter. The target analytical sensitivity for these dust samples was 260 S/cm2. Due to excessive particulate the analytical sensitivity of 260 str/cm<sup>2</sup> as required by the method was not reached. An aspect ratio of  $\geq 5:1$  was applied.

### Results

All samples associated with this EMSL order ID were analyzed via transmission electron microscopy (TEM) using procedures from TEM ASTM 6480. Analysis was performed on JEOL 100 CX II & JEOL 1200 EX microscopes at approximately 19,000X. Chrysotile was detected in all field samples except for sample P0002-CR06-WP02-01.

### **Quality Control Performed**

The Quality Control (QC) and equipment calibration was performed in compliance with EMSL's Quality Assurance Manual. Two (2) blanks and two (2) inter-analyst QC samples were analyzed. All QC results presented within this package were found to be concordant.





EMSL ANALYTICAL, INC. 200 RT. 130 NORTH CINNAMINSON, NJ 08077

PHONE: (800) 220-3675 FAX: (856) 786-0235

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. In addition, I certify, that to the best of my knowledge and belief, the data as reported are true and accurate. Release of the data contained in this data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Robyn Denton

Asbestos Special Projects Manager EMSL Cinnaminson, NJ





# 2. Tabulated Sample Results



200 Route 130 North, Clinnaminaon, NJ 08077 (800) 220-3675 / (856) 786-5974

http://www.EMSL.com

cinnasblab@EMSL.com

EMSL Order:

041333714

CustomerID: CustomerPO: RFWE53 0084577

ProjectID:

**RFP 272D** 

Attn: Smita Sumbaly

**Weston Solutions (King Georges Post)** 1090 King Georges Post Road

Sulte 201

**Edison, NJ 08837** 

Phone:

(732) 585-4400

Fax:

Received:

12/14/13 11:30 AM

Analysis Date:

12/16/2013

Collected:

12/12/2013

Project: Site #: 0029-0122; RFP #: 272D

Test Report: Asbestos Analysis of Wipe Samples Using Method ASTM 6480

SAMPLE ID	AREA SAMPLED (cm²)	ASBESTOS TYPE	ASBESTOS STRUCTURES	Sensitivity (str/cm²)	CONCENTRATION (str/cm²)	COMMENTS
FB1-121213	0	None Detected	<2.99			Blank
041333714-0001						
LB-121213	0	None Detected	<2.99			Blank
041333714-0002						
P0002-CR01- WP01-01	100	Chrysotile	3	970	2910	Due to excessive particulate the analytical sensitivity of 260 str/cm² as
041333714-0003					•	required by the method was not reached.
P0002-CR01- WP02-01	100	Chrysotile	19	970	18400	Due to excessive particulate the analytical sensitivity of 260 str/cm² as
041333714-0004						required by the method was not reached.
P0002-CR01- WP03-01	100	Chrysotile	25	1940	48500	Due to excessive particulate the analytical sensitivity of 260 str/cm <sup>2</sup> as
041333714-0005				*		required by the method was not reached.
P0002-CR02- WP01-01 041333714-0006	100	Chrysotile	11	970	10700	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.
P0002-CR02- WP02-01 041333714-0007	100	Chrysotile	5	970	4850	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.
P0002-CR02- WP03-01 041333714-0008	100	Chrysotile	6	970	5820	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.
P0002-CR03- WP01-01	100	Chrysotile	<2.99	1940	<5800	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.
041333714-0009						
P0002-CR03- WP02-01 041333714-0010	100	Chrysotile	<2.99	4850	<14500	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.

Analyst(s)

Chris Little (4) Frank Craig (2) Peter Harrison (1) Wayne Froehlich (15) Stephen Siegel, CiH, Laboratory Manager or other approved signatory

EMSL maintains tiability to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted.

Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ

Initial report from 12/16/2013 22:20:56

Test Report TEMMicro-7.21.0 Printed: 12/17/2013 10:04:17 AM



200 Route 130 North, Cinnaminson, NJ 08077 Phone/Fax: (800) 220-3675 / (858) 786-5974

http://www.EMSL.com cinnasblab@EMSL.com

EMSL Order:

041333714

CustomerID:

RFWE53

CustomerPO: ProjectiD:

0084577 RFP 272D

Attn: Smita Sumbaly

Weston Solutions (King Georges Post) 1090 King Georges Post Road

Sulte 201

**Edison, NJ 08837** 

Phone:

(732) 585-4400

Fax:

Received:

12/14/13 11:30 AM

Analysis Date:

12/16/2013

Collected:

12/12/2013

Project: Site #: 0029-0122; RFP #: 272D

## Test Report: Asbestos Analysis of Wipe Samples Using Method ASTM 6480

SAMPLE ID	SAMPLED (cm²)	ASBESTOS TYPE	ASBESTOS STRUCTURES	Sensitivity (str/cm²)	CONCENTRATION (str/cm²)	COMMENTS
P0002-CR03- WP03-01 041333714-0011	100	Chrysotile	20	485	9700	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.
P0002-CR04- WP01-01 041333714-0012	100	Chrysotile	20	485	9700	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.
P0002-CR04- WP02-01 041333714-0013	100	Chrysotile	43	485	20900	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.
P0002-CR04- WP03-01 041333714-0014	100	Chrysotile	10	485	4850	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.
P0002-CR05- WP01-01 041333714-0015	100	Chrysotile	24	970	23300	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.
P0002-CR05- WP02-01 041333714-0016	100	Chrysotile	13	970	12600	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.
P0002-CR05- WP03-01 041333714-0017	100	Chrysotile	.30	485	14600	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.
P0002-CR06- WP01-01 041333714-0018	100	Chrysotile	19	485	9220	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.
P0002-CR06- WP02-01 041333714-0019	100	None Detected	<2.99	486	<1450	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.

Analyst(s)

Chris Little (4)

Frank Craig (2)

Peter Harrison (1)

Wayne Froehlich (15)

Stephen Siegel, CIH, Laboratory Manager or other approved signatory

EMSL maintains liability to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretetion and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted.

Samples analyzed by EMSt. Analytical, inc. Cinnaminson, NJ

initial report from 12/16/2013 22:20:56

Test Report TEMMicro-7.21.0 Printed: 12/17/2013 10:04:17 AM



200 Route 130 North, Cinnaminson, NJ 08077 Phone/Fax: (800) 220-3675 / (856) 786-5974

http://www.EMSL.com cinnasblab@EMSL.com EMSL Order:

041333714

CustomeriD:

RFWE53

CustomerPO: ProjectID:

0084577 RFP 272D

Attn: Smita Sumbaly

**Weston Solutions (King Georges Post)** 1090 King Georges Post Road

Suite 201

Edison, NJ 08837

Phone:

(732) 585-4400

Fax:

Received:

12/14/13 11:30 AM

Analysis Date:

12/16/2013

Collected:

12/12/2013

Project: Site #: 0029-0122; RFP #: 272D

## Test Report: Asbestos Analysis of Wipe Samples Using Method ASTM 6480

SAMPLEID	AREA SAMPLED (cm²)	ASBESTOS TYPE	ASBESTOS STRUCTURES	Sensitivity (str/cm²)	CONCENTRATION (str/cm²)	COMMENTS
P0002-CR06- WP03-01 041333714-0020	100	Chrysotile	27	486	13100	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.
P0002-CR07- WP01-01 041333714-0021	100	Chrysotile	27	486	13100	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.
P0002-CR07- WP02-01 041333714-0022	100	Chrysotile	4	486	1940	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.

Analyst(s)

Chris Little (4) Frank Craig (2) Peter Harrison (1)

Wayne Froehlich (15)

Stephen Siegel, CIH, Laboratory Manager or other approved signatory

EMSL maintains liability to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted.

Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ

Initial report from 12/16/2013 22:20:56

Test Report TEMMicro-7,21.0 Printed: 12/17/2013 10:04:17 AM

THIS IS THE LAST PAGE OF THE REPORT.

941333714

Page 1 of 2

USEPA

DateShipped: 12/13/2013 RFP# 272D PO# 0084577

CHAIN OF CUSTODY RECORD

Site #: 0029 - 0122

Contact Phone: 732-570-4943 Contact Name: Joel Petty

No: 2-121213-105237-0004

Cooler #: 1

Lab Phone: 858-303-2538

# QB	Sample #	Analyses	Matrix	Collecti	Collecti Collected	Sample Time	Numb	Numb Container Cont	Preservati ve	Area Width	Area	Vol Units	S S S	
				Method										
	FB1-121213	Asbestos TEM	Wipe	Grab	12/12/2013	14:00	_	Plastic Bag	None	0	0	CH CH	Z	
	LB-121213	Asbestos TEM	Wipe	Grab	12/12/2013	14:00	-	Plastic Bag	None	0	0	cm	Z	
	P0002-CR01-WP01-01	Asbestos TEM	Wipe	Grab	12/12/2013	14:47	-	Plastic Bag	None	10	10	сш	Z	
	P0002-CR01-WP02-01	Asbastos TEM	Wipe	Grab	12/12/2013	14:48	F	Plastic Bag	None	10	10	ш	z	
	P0002-CR01-WP03-01	Asbestos TEM	Wipe	Grab	12/12/2013	14:49	-	Piastic Bag	None	10	10	E	z	
	P0002-CR02-WP01-01	Asbestos TEM	Wipe	Grab	12/12/2013	15:26	-	Plastic Bag	None	10	10	сш	. <b>N</b>	
	P0002-CR02-WP02-01	Asbestos TEM	Wipe	Grab	12/12/2013	15:27	-	Plastic Bag	None	10	10	сш	Z	
	P0002-CR02-WP03-01	Asbestos TEM	Wipe	Grab	12/12/2013	15:28	_	Plastic Bag	None	10	10	ு ய்	z	
	P0002-CR03-WP01-01	Asbestos TEM	Wipe	Grab	12/12/2013	16:13	-	1 Plastic Bag	None	10	10	ငယ်	Ž.	
	P0002-CR03-WP02-01	Asbestos TEM	Wipe	Grab	12/12/2013	16:14	-	Plastic Bag	None	10	10	cm	<u>;</u> ];	ľ
	P0002-CR03-WP03-01	Asbestos TEM	Wipe	Grab	12/12/2013	16:15	-	Plastic Bag	None	10	10	cm <sup>[-]</sup> uo	N	) <u> </u>
	P0002-CR04-WP01-01	Asbestos TEM	Wipe	Grab	12/12/2013	16:02	-	Plastic Bag	None	10	10	cm	N===	 
	P0002-CR04-WP02-01	Asbestos TEM .	Wipe	Grab	12/12/2013	16:03	-	Plastic Bag	None	10	10	-T mo	SSN	17
	P0002-CR04-WP03-01	Asbestos TEM	Wipe	Grab	12/12/2013	16:04	<b>.</b>	Plastic Bag	None	10	10	10 cm	_ ][ Z	
	P0002-CR05-WP01-01	Asbestos TEM	Wipe	Grab	12/13/2013	08:16	-	Plastic Bag	None	10	10 cm	cm	, Ì	
	P0002-CR05-WP02-01	Asbestos TEM	Wipe	Grab	12/13/2013	08:17	1	Plestic Bag	None	10	5	: Ea	z	
	P0002-CR05-WP03-01	Asbestos TEM	Wipe	Grab	12/13/2013	08:18	-	Plastic Bag	None	10	5	티	Z	
	P0002-CR06-WP01-01	Asbestos TEM	Wipe	Grab	12/12/2013	14:14	1	Plastic Bag	None	10	10 cm	E E	z	

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	Special Instructions: 24 Hour TAT Preliminary Date. Email results to Carlos. Huertas@WestonSolutions.com, Joel.Petty@WestonSolutions.com, and S.Sumbaly@WestonSoltulons.com	

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Items/Reason	A samples		



041333714

CHAIN OF CUSTODY RECORD Site #: 0029 - 0122

Contact Name: Joel Petty Contact Phone: 732-570-4943

DateShipped: 12/13/2013 RFP# 272D

Page 2 of 2 USEPA PO# 0084577

No: 2-121213-105237-0004.

Lab: EMSI.

Lab Phone: 858-303-2538

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Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
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Car kamus 110					
		-			





PHONE: (800) 220-3675 FAX: (856) 786-0235

December 20, 2013

Smita Sumbaly Weston Solutions 1090 King Georges Post Road Suite 201 Edison, NJ 08837 732-585-4400

Re: Narrative TEM ASTM 6480 041333716; RFP #: 272D, Site #:0029-0122

Dear Smita:

On December 14, 2013, EMSL Analytical, Inc. in Cinnaminson, NJ received twenty-one (21) wipe samples via overnight carrier from Weston Solutions for asbestos content analysis via TEM ASTM 6480. The samples were logged in following normal lab procedures. Samples were received under Chain of Custody and in good condition.

### TEM ASTM D6480

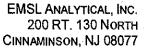
Samples are prepared by rinsing the sampling wipe and sample bag into a clean 500 mL specimen container. The specimen cup is filled with 400 mL of deionized water and the pH is adjusted to 3-4 with acetic acid. Once the desired pH is achieved the final volume is brought up to 500 mL. Multiple dilutions of each sample are filtered through a 47 mm MCE filtration apparatus. The filter is dried in a petri dish. A portion of the filter is prepared through a direct transfer technique. This technique requires the collapse of a filter wedge onto a microscope slide with hot acetone vapor. The collapsed filter is then etched to remove the top 5% of the filter and a thin layer of carbon deposited on the filter. The carbon coated filter is placed on top of a copper mesh TEM Grid and the filter polymer is wicked away in an acetone bath.

Samples were analyzed by Transmission Electron Microscopy (TEM) via ASTM D6480-05. All data was reported as structures per square centimeter. The target analytical sensitivity for these dust samples was 260 S/cm2. Due to excessive particulate the analytical sensitivity of 260 str/cm<sup>2</sup> as required by the method was not reached. An aspect ratio of  $\geq 5:1$  was applied.

### Results

All samples associated with this EMSL order ID were analyzed via transmission electron microscopy (TEM) using procedures from TEM ASTM 6480. Analysis was performed on JEOL 100 CX II & JEOL 1200 EX microscopes at approximately 19,000X. Chrysotile was detected in all field samples with the exception of P0002-CR13-WP03-01.







PHONE: (800) 220-3675 FAX: (856) 786-0235

## **Quality Control Performed**

The Quality Control (QC) and equipment calibration was performed in compliance with EMSL's Quality Assurance Manual. One (1) blank, one (1) intra-analyst, and one (1) inter-analyst QC samples were analyzed. All QC results presented within this package were found to be concordant.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. In addition, I certify, that to the best of my knowledge and belief, the data as reported are true and accurate. Release of the data contained in this data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Robyn Denton

Asbestos Special Projects Manager

EMSL Cinnaminson, NJ





# 2. Tabulated Sample Results

6



200 Route 130 North, Cinnaminson, NJ 08077

Phone/Fax: (800) 220-3675 / (856) 786-5974

http://www.EMSL.com

cinnasblab@EMSL.com

EMSL Order:

041333716

CustomeriD: CustomerPO: RFWE53 0084577

ProjectID:

RFP 272D

Attn: Smita Sumbaly

**Weston Solutions (King Georges Post)** 1090 King Georges Post Road

Suite 201

Edison, NJ 08837

Phone:

(732) 585-4400

Fax:

Received:

12/14/13 11:30 AM

Analysis Date:

12/18/2013

Collected:

12/12/2013

Project: Site #: 0029-0122, RFP #: 272D

## Test Report: Asbestos Analysis of Wipe Samples Using Method ASTM 6480

SAMPLE ID	AREA SAMPLED (cm²)	ASBESTOS TYPE	ASBESTOS STRUCTURES	Sensitivity (str/cm²)	CONCENTRATION (str/cm²)	COMMENTS
FB2-121213 041333716-0001		None Detected	<2.99	· · · · · · · · · · · · · · · · · · ·		Blank
P0002-CR07- WP03-01 041333716-0002	100	Chrysotile	9	485	4370	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.
P0002-CR08- WP01-01 041333716-0003	. 100	Chrysotile	4	485	1940	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.
P0002-CR08- WP02-01 041333716-0004	100	Chrysotile	,6	485	2910	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.
P0002-CR08- WP03-01 041333716-0005	100	Chrysotile	5	485	2430	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.
P0002-CR09- WP01-01 041333716-0006	100	Chrysotile	8	970	7760	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.
P0002-CR09- WP02-01 041333716-0007	100	Chrysotile	7	485	3400	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.
P0002-CR09- WP03-01 041333716-0008	100	Chrysotile	12	485	5820	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.
P0002-CR10- WP01-01 041333716-0009	100	Chrysotile	20	9700	194000	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.
P0002-CR10- WP02-01 041333716-0010	100	Chrysotile	15	9700	146000	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.
				'		

Analyst(s)

Debbie Little (1)

Wayne Froehlich (17)

Ted Young (3)

Stephen Siegel, CIH, Laboratory Manager or other approved signatory

EMSL maintains liability to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted.

Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ

nitial report from 12/19/2013 08:30:19

Test Report TEMMicro-7.21.0 Printed: 12/19/2013 8:35:53 AM



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(800) 220-3675 / (856) 786-5974 Phone/Fax:

http://www.EMSL.com

cinnasblab@EMSt.com

EMSL Order:

041333716

CustomerID: CustomerPO:

RFWE53 0084577

ProjectID:

RFP 272D

Attn: Smita Sumbaly

**Weston Solutions (King Georges Post)** 1090 King Georges Post Road

Suite 201

**Edison, NJ 08837** 

Phone:

(732) 585-4400

Fax:

Received:

12/14/13 11:30 AM

Analysis Date:

12/18/2013

12/12/2013

Collected:

Project: Site #: 0029-0122, RFP #: 272D

## Test Report: Asbestos Analysis of Wipe Samples Using Method ASTM 6480

SAMPLE ID	AREA SAMPLED (cm²)	ASBESTOS TYPE	ASBESTOS STRUCTURES	Sensitivily (str/cm²)	CONCENTRATION (str/cm²)	COMMENTS
P0002-CR10- WP03-01 041333716-0011	100	Chrysotile	22	970	21300	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.
P0002-CR11- WP01-01 041333716-0012	100	Chrysotile	13	485	6310	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.
P0002-CR11- WP02-01 041333716-0013	100	Chrysotile	11	485	5340	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.
P0002-CR11- WP03-01 041333716-0014	100	Chrysotile	8	970	7760	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.
P0002-CR12- WP01-01 041333716-0015	100	Chrysotile	12	485	5820	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.
P0002-CR12- WP02-01 041333716-0016	100	Chrysotile	13	485	6310	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.
P0002-CR12- WP03-01 041333716-0017	100	Chrysotile	13	970	12600	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.
P0002-CR13- WP01-01 041333716-0018	100	Chrysotile	4	485	1940	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.
P0002-CR13- WP02-01 041333716-0019	100	Chrysotile	3	485	1460	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.

Analyst(s)

Debbie Little (1)

Wayne Froehlich (17)

Ted Young (3)

Stephen Siegel, CIH, Laboratory Manager or other approved signatory

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Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ

nitial report from 12/19/2013 08:30:19

Test Report TEMMicro-7.21.0 Printed: 12/19/2013 8:35:53 AM



200 Route 130 North, Cinnaminson, NJ 08077

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http://www.EMSL.com

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EMSL Order:

041333716

CustomeriD: CustomerPO: RFWE53 0084577

ProjectID:

**RFP 272D** 

Attn: **Smita Sumbaly** 

> **Weston Solutions (King Georges Post)** 1090 King Georges Post Road

Suite 201

**Edison, NJ 08837** 

Phone:

(732) 585-4400

Fax:

Received:

12/14/13 11:30 AM

Analysis Date:

12/18/2013

Collected:

12/12/2013

Project: Site #: 0029-0122, RFP #: 272D

# Test Report: Asbestos Analysis of Wipe Samples Using Method ASTM 6480

SAMPLEID	AREA SAMPLED (cm²)	ASBESTOS TYPE	ASBESTOS STRUCTURES	Sensitivity (str/cm²)	CONCENTRATION (str/cm²)	COMMENTS
P0002-CR13- WP03-01 041333716-0020	100	None Detected	<2.99	485	<1450	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.
P0002-CR14- WP01-01 041333716-0021	100	Chrysotile	13	646	8400	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.

Analyst(s)

Debbie Little (1)

Wayne Froehlich (17)

Ted Young (3)

Stephen Siegel, CIH, Laboratory Manager

or other approved signatory

EMSL maintains flability to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted.

Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ

nitial report from 12/19/2013 08:30:19

Test Report TEMMicro-7.21.0 Printed: 12/19/2013 8:35:53 AM

THIS IS THE LAST PAGE OF THE REPORT.

04133371(6 No: 2-121313-112124-0005

CHAIN OF CUSTODY RECORD

Contact Phone: 732-570-4943 Contact Name: Joel Petty Site #: 0029 - 0122

DateShipped: 12/13/2013

Page 1 of 2 USEPA

PO# 0084577 RFP# 2720

Lab: EMSL

Lab Phone: 858-303-2538

# <del>Q</del> e	Sample #	Analyses	Matrix	Collection	Cotlected	Sample Time	Numb Cont	Container	Preservati ve	Area	Area Vol Length Uni	Cuits	<b>2</b> 0
	-			Method									
	070707	Achoetoe TEM	Wine	Grah	12/12/2013	15:00	-	Plastic Bag	Nona	0	0	Ę	z
	FBZ-121213	Ashanton TEM	S. I.V.	da G	12/13/2013	08:54	-	Plastic Bag	None	10	10	сш	z
	P0002-CR07-WP03-01	Aspesios I Elvi	A PA	3 4	12/13/2013	08:58	-	Plastic Bad	None	Đ	10	£	z
	P0002-CR08-WP01-01	Asbestos I EIM	ed M	G G	12/13/2013	08:59	-	Piastic Bag	None	2	10	Ę	z
	P0002-CR08-WP02-01	ASDESTOR LEIM	A.De	G an	2/10/2017	20.00	†	O Continuo	out.	101	10	eg G	z
	P0002-CR08-WP03-01	Asbestos TEM	Wipe	Grab	12/13/2013	08:29	-	Plastic bag	Morie	2 5	\$	Ę	z
	P0002-CR09-WP01-01	Asbestos TEM	Wipe	Grab	12/12/2013	14:07	-	Plastic Bag	BIION	2 5	2 5		Z
	P0002-CR09-WP02-01	Asbestos TEM	Wipe	Grab	12/12/2013	14:09	-	Plastic Bag	None	2 5	2 5	<u> </u>	2 2
	P0002-CB09-WP03-01	Asbestos TEM	Wipe	Grab	12/12/2013	14:12	-	Plastic Bag	None	2	2	<u> </u>	2 :
	D0002-CB40-WP01-01	Ashestos TEM	Wipe	Grab	12/12/2013	14:21	-	Plastic Bag	Nona	9	2	ا ا	z
	P0002-01-01-01	Ashastos TEM	Wine	Grab	12/12/2013	14:23	-	Piastic Bag	None	5	9	동 	z
	F0002-CR10-WF02-01	Table on the state of the state	24.1	400	19/19/2013	14.24	-	Plastic Bad	None	10	10	Ę	z
	P0002-CR10-WP03-01	Asbestos I EM	wipe	Q8	12/12/2013	14.64	•	Con office of	Mone	ç	10	5	z
	P0002-CR11-WP01-01	Asbestos TEM	Wipe	Grab	12/13/2013	08:12	- -	riasuc pag	O O	2 5	101	8	z
	P0002-CR11-WP02-01	Asbestos TEM	Wipe	Grab	12/13/2013	08:13	-	Flastic Dag	NONE PLOST	5 5	5 5	<b> </b>	Z
	P0002-CR11-WP03-01	Asbestos TEM	Wipe	Grab	12/13/2013	08:14	-	Mastic bag	BUON	2 5	2 5	7	:   z
	P0002-CR12-WP01-01	Asbestos TEM	Wipe	Grab	12/12/2013	14:26	-	Plastic Bag	None	2 9	2 6	CITE	[ ]   
	P0002-CR12-WP02-01	Asbestos TEM	Wipe	Grab	12/12/2013	14:28	-	Plastic Bag	None	2 5			Į.
	P0002-CR12-WP03-01	Asbestos TEM	Wipe	Grab	12/12/2013	14:29	-	Plastic Bag	None	2 \$	2 5		1/2
	P0002-CR13-WP01-01	Asbestos TEM	Wipe	Grab	12/12/2013	14:33	뒤	Plastic Bag	None	2		5	
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A II

SAMPLES TRANSFERRED FROM CHAIN OF CUSTODY #

Special Instructions: 24 Hour TAT Preliminary Data. Email results to Carlos, Huartas@WestonSolutions.com. Joel.Petty@WestonSolutions.com, and S.Sumbaly@WestonSoltulons.com



04 (3337) 6 No: 2-121313-112124-0005

Page 2 of 2

USEPA

DateShipped: 12/13/2013 RFP# 272D PO# 0084577

Contact Phone: 732-570-4943

Lab Phone: 858-303-2538

Cooler #: 1 Lab: EMSL

CHAIN OF CUSTODY RECORD

Contact Name: Joel Petty

Site #: 0029 - 0122

									,			1777	4	
Lab#	Sample #	Analyses	Matrix	Collection	Collecti Collected	Sample Time	Numb	Numb Container Cont	Preservati	Width	Length Units	Coffe	38	
				Method								1_		
	P0002-CR13-MP02-01	Asbestos TEM	Wipe	Grab	12/12/2013	14:34	1	Plastic Bag	None	10	10	Ę	z	
	P0002 CB13 WB03 01	Ashestne TEM	Wine	Grab	12/12/2013	14:35	-	Plastic Bag	None	10	10	E G	z	
	P0002-CR13-WF103-01	Aspestos TEM	Wipe	Gab	12/12/2013	14:37	-	Plastic Bag	None	10	10	m U	z	
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Special	Special Instructions: 24 Hour TAT Preliminary Data. Email results to Carlos Huertas@WestonSolutions.com,	hary Data, Email res	ults to Carlos	.Huertas@V	VestonSolution	1s.com,		O	CHAIN OF CUSTODY#	TODY #				
Joel Pen	Joe! Perty@westonsolutions.com, and s.sumaay@westonsolutions	our many (ever associo												]

					October 1 Contract
Items/Reason	Refinculshed by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Open Receipt
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EMSL ANALYTICAL, INC. 200 RT. 130 NORTH CINNAMINSON, NJ 08077

PHONE: (800) 220-3675 FAX: (856) 786-0235

December 18, 2013

Smita Sumbaly Weston Solutions 1090 King Georges Post Road Suite 201 Edison, NJ 08837 732-585-4400

Re: Narrative TEM ASTM 6480 041333715; RFP #: 272D, Site #:0029-0122

### Dear Smita:

On December 14, 2013, EMSL Analytical, Inc. in Cinnaminson, NJ received twenty-one (21) wipe samples via overnight carrier from Weston Solutions for asbestos content analysis via TEM ASTM 6480. The samples were logged in following normal lab procedures. Samples were received under Chain of Custody and in good condition.

#### TEM ASTM D6480

Samples are prepared by rinsing the sampling wipe and sample bag into a clean 500 mL specimen container. The specimen cup is filled with 400 mL of deionized water and the pH is adjusted to 3-4 with acetic acid. Once the desired pH is achieved the final volume is brought up to 500 mL. Multiple dilutions of each sample are filtered through a 47 mm MCE filtration apparatus. The filter is dried in a petri dish. A portion of the filter is prepared through a direct transfer technique. This technique requires the collapse of a filter wedge onto a microscope slide with hot acetone vapor. The collapsed filter is then etched to remove the top 5% of the filter and a thin layer of carbon deposited on the filter. The carbon coated filter is placed on top of a copper mesh TEM Grid and the filter polymer is wicked away in an acetone bath.

Samples were analyzed by Transmission Electron Microscopy (TEM) via ASTM D6480-05. All data was reported as structures per square centimeter. The target analytical sensitivity for these dust samples was 260 S/cm2. Due to excessive particulate the analytical sensitivity of 260 str/cm<sup>2</sup> as required by the method was not reached. An aspect ratio of  $\geq$  5:1 was applied.

#### Results

All samples associated with this EMSL order ID were analyzed via transmission electron microscopy (TEM) using procedures from TEM ASTM 6480. Analysis was performed on JEOL 100 CX II & JEOL 1200 EX microscopes at approximately 19,000X. Chrysotile was detected samples P0002-CR14-WP02-01, P0002-CR14-WP03-01, P0002-CR15-WP01-01, P0002-CR15-WP02-01, P0002-CR16-WP03-01, P0002-CR17-WP01-01, P0002-CR17-WP03-01, P0002-CR18-WP02-01, P0002-CR19-WP02-01, P0002-CR19-WP03-01, P0002-CR20-WP02-01, P0002-CR20-WP03-01.





EMSL ANALYTICAL, INC. 200 RT. 130 NORTH CINNAMINSON, NJ 08077

PHONE: (800) 220-3675 FAX: (856) 786-0235

### **Quality Control Performed**

The Quality Control (QC) and equipment calibration was performed in compliance with EMSL's Quality Assurance Manual. One (1) blank, one (1) intra-analyst, and two (2) inter-analyst QC samples were analyzed. All QC results presented within this package were found to be concordant.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. In addition, I certify, that to the best of my knowledge and belief, the data as reported are true and accurate. Release of the data contained in this data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Robyn Denton

Asbestos Special Projects Manager EMSL Cinnaminson, NJ





# 2. Tabulated Sample Results



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http://www.EMSL.com cinnasblab@EMSL.com EMSL Order:

041333715

CustomerID: CustomerPO: RFWE53 0084577

ProjectID:

RFP 272D

Attn: Smita Sumbaly

**Weston Solutions (King Georges Post)** 1090 King Georges Post Road

Suite 201

Edison, NJ 08837

Phone:

(732) 585-4400

Fax: Received:

12/14/13 11:30 AM

Analysis Date:

12/17/2013

Collected:

12/12/2013

Project: Site #: 0029-0122, RFP #: 272D

### Test Report: Asbestos Analysis of Wipe Samples Using Method ASTM 6480

SAMPLE ID	AREA SAMPLED (cm²)	ASBESTOS TYPE	ASBESTOS STRUCTURES	Sensitivity (str/cm²)	CONCENTRATION (str/cm²)	COMMENTS
FB3-121213	····	None Detected	<2.99			Blank
041333715-0001						
P0002-CR14- WP02-01 041333715-0002	100	Chrysotile	4	1940	7760	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.
P0002-CR14- WP03-01 041333715-0003	100	Chrysotile	10	1940	19400	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.
P0002-CR15- WP01-01 041333715-0004	100	Chrysotile	6	1940	11600	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.
P0002-CR15- WP02-01 041333715-0005	100	Chrysotile	8	4860	38900	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.
P0002-CR15- WP03-01 041333715-0006	100	None Detected	<2.99	4850	<14500	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.
P0002-CR16- WP01-01 041333715-0007	100	None Detected	<2.99	9700	<29000	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.
P0002-CR16- WP02-01 041333715-0008	100	None Detected	<2.99	1940	<5800	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.
P0002-CR16- WP03-01 041333715-0009	100	Chrysotile	6	9710	58300	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.
P0002-CR17- WP01-01 041333715-0010	100	Chrysotile	<2.99	4850	<14500	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.

Analyst(s)

Chris Little (7)

Wayne Froehlich (2)

Ted Young (12)

Stephen Siegel, CIH, Laboratory Manager or other approved signatory

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Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ

Initial report from 12/17/2013 13:54:34

Test Report TEMMicro-7.21.0 Printed: 12/17/2013 2:29:42 PM



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cinnasblab@EMSL.com

EMSL Order:

041333715

CustomerID: CustomerPO: RFWE53 0084577

ProjectiD:

RFP 272D

Attn: Smita Sumbaly

Weston Solutions (King Georges Post) 1090 King Georges Post Road

Suite 201

Edison, NJ 08837

Phone:

(732) 585-4400

Fax:

Received:

12/14/13 11:30 AM

Analysis Date:

12/17/2013

Collected:

12/12/2013

Project: Site #: 0029-0122, RFP #: 272D

### Test Report: Asbestos Analysis of Wipe Samples Using Method ASTM 6480

SAMPLE ID .	AREA SAMPLED (cm²)	ASBESTOS TYPE	ASBESTOS STRUCTURES	Sensitivity (str/cm²)	CONCENTRATION (str/cm²)	COMMENTS
P0002-CR17- WP02-01 041333715-0011	100	None Detected	<2.99	1940	<5800	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.
P0002-CR17- WP03-01 041333715-0012	100	Chrysotile	<2.99	1940	<5800	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.
P0002-CR18- WP01-01 041333715-0013	100	None Detected	<2.99	4850	<14500	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.
P0002-CR18- WP02-01 041333715-0014	100	Chrysotile	4	4850	19400	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.
P0002-CR18- WP03-01 041333715-0015	100	None Detected	<2.99	1940	<5800	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.
P0002-CR19- WP01-01 041333715-0016	100	None Detected	<2.99	1940	<5800	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.
P0002-CR19- WP02-01 041333715-0017	100	Chrysotile	<2.99	1940	<5800	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.
P0002-CR19- WP03-01 041333715-0018	100	Chrysotile	15	24200	363000	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.
P0002-CR20- WP01-01 041333715-0019	100	None Detected	<2.99	1940	<5800	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.

Analyst(s)

Chris Little (7)

Wayne Froehlich (2)

Ted Young (12)

Stephen Siegel, CIH, Laboratory Manager or other approved signatory

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Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ

Initial report from 12/17/2013 13:54:34

Test Report TEMMicro-7.21.0 Printed: 12/17/2013 2:29:42 PM



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http://www.EMSL.com

cinnasblab@EMSL.com

EMSL Order:

041333715

CustomeriD:

RFWE53 0084577

CustomerPO: ProjectID:

RFP 272D

Attn: Smita Sumbaly

**Weston Solutions (King Georges Post)** 1090 King Georges Post Road

Suite 201

Edison, NJ 08837

Phone:

(732) 585-4400

Fax:

Received:

12/14/13 11:30 AM

Analysis Date:

12/17/2013

Collected:

12/12/2013

Project: Site #: 0029-0122, RFP #: 272D

### Test Report: Asbestos Analysis of Wipe Samples Using Method ASTM 6480

SAMPLE ID	AREA SAMPLED (cm²)	ASBESTOS TYPE	ASBESTOS STRUCTURES	Sensitivity (str/cm²)	CONCENTRATION (str/cm²)	COMMENTS
P0002-CR20- WP02-01 041333715-0020	100	Chrysotile	<2.99	1940	<5800	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.
P0002-CR20- WP03-01 041333715-0021	100	Chrysotile	. 5	1940	9700	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.

Analyst(s)

Chris Little (7)

Wayne Froehlich (2)

Ted Young (12)

Stephen Siegel, CIH, Laboratory Manager or other approved signatory

samples reported above and may not be reproduced, except in full, without written approval by EMSt. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted.

Samplas analyzed by EMSL Analytical, Inc. Cinnaminson, NJ

Initial report from 12/17/2013 13:54:34

Test Report TEMMicro-7.21.0 Printed: 12/17/2013 2:29:42 PM

THIS IS THE LAST PAGE OF THE REPORT.

No: 2-121313-112316-0006 041333715

Page 1 of 2

USEPA

DateShipped: 12/13/2013 RFP# 272D

PO# 0084577

CHAIN OF CUSTODY RECORD

Site #: 0029 - 0122

Contact Name: Joel Petty Contact Phone; 732-570-4943

Lab Phona: 858-303-2538

Cooler #: 1 Lab: EMSL

Lab#	Sample #	Analyses	Matrix	Collecti	Collected	Sample Time	Numb	Container	Preservati ve	Area	Area Vol	Vol	င် ရှင်	
				Method										—г
	FB3-121213	Asbastos TEM	Wipe	Grab	12/12/2013	16:00	-	Plastic Bag	Nona	0	0	cm	Z	
	P0002-CR14-WP02-01	Asbestos TEM	Wipe	Grab	12/12/2013	14:38	F	Plastic Bag	None	10	10	cm	Z	
	P0002-CR14-WP03-01	Asbestos TEM	Wipa	Grab	12/12/2013	14:39	1	Plastic Bag	None	10	10	cm	z	<del>-</del> -
	P0002-CR15-WP01-01	Asbastos TEM	Wipe	Grab	12/12/2013	14:42	1	Plastic Bag	Nona	10	10	cia	Z	
	P0002-CR15-WP02-01	Asbestos TEM	Wipe	Grab	12/12/2013	14:43	<b>.</b>	Plastic Bag	None	19	10	ш	z	
	P0002-CR15-WP03-01	Asbestos TEM	Wipe	Grab	12/12/2013	14:44	4	Plastic Bag	None	10	9	ш	Z	
	P0002-CR16-WP01-01	Asbestos TEM	ediM	Grab	12/12/2013	15:08	,	Plastic Bag	Nona	10	10	шo	z	<del></del> -
	P0002-CR16-WP02-01	Asbastos TEM	Wipe	Grab	12/12/2013	15:09		Plastic Bag	None	10	10	Е	z	_
	P0002-CR16-WP03-01	Asbestos TEM	Wipe	Grab	12/12/2013	15:10	-	Plastic Bag	None	10	10	шo	z	
	P0002-CR17-WP01-01	Asbastos TEM	Wipe	Grab	12/12/2013	15:15	-	Plastic Bag	Nona	10	10	шo	z	<del>,</del>
	P0002-CR17-WP02-01	Aspestos TEM	Wipe	Grab	12/12/2013	15:16	-	Plastic Bag	None	10	10	шo	z	
	P0002-CR17-WP03-01	Asbastos TEM	Wipe	Grab	12/12/2013	15:17	-	Plastic Bag	None	10	10	cm	z	
	P0002-CR18-WP01-01	Asbastos TEM	Wipe	Grab	12/13/2013	08:23	-	Plastic Bag	None	10	10	Ę	z	
	P0002-CR18-WP02-01	Asbastos TEM	Wipe	Grab	12/13/2013	08:24	-	Plastic Bag	Nona	. 10	10	шo	z	· 
	P0002-CR18-WP03-01	Aspestos TEM	Wipa	Grab	12/13/2013	08:25		Plastic Bag	None	9	5	E G	z	- 1
	P0002-CR19-WP01-01	Asbastos TEM	Wipe	Grab	12/12/2013	15:21	_	Plastic Bag	None	9	5	шo	z	-
	P0002-CR19-WP02-01	Asbastos TEM	Wipe	Grab	12/12/2013	15:22	1	Plastic Bag	None	5	49	မ္မာ	z	
	P0002-CR19-WP03-01	Asbestos TEM	Wipa	Grab	12/12/2013	15:23	-	Plastic Bag	None	10	10	7( E	z	
												13		

			-	SAMPLES TRANSFERRED FROM	RRED FROM
Special instructions: 2 Joel Petty@WestonSo	Special instructions: 24 Hour TAT Preliminary Data. Email results to Carlos.Huartas@WestonSolutions.com, Joel Petty@WestonSolutions.com, and S. Surrbaly@WestonSolutions.com	arlos.Huartas@We .com		CHAIN OF CUSTODY#	#
S) w bodowood	Online in the Characters and Organization	Data/Time	Sample Condition   Date/Time   Barelvad by (Stringting and Organization)   Date/Time   Sample Conditi	Date/Time	Sampia Condit

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d/	Coltaniano Contantanto (O) and London and	Data/Time	Beceived by (Signature and Organization)	Date/Time	Date/Time Sampia Condition Upon Receipt	_
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all sample	CTEST MAIN	13/13/13 150c			25.0	
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				}		



041333715

Page 2 of 2

USEPA

DateShipped: 12/13/2013 RFP# 272D PO# 0084577

CHAIN OF CUSTODY RECORD

Site #: 0029 - 0122

Contact Name: Joel Petty Contact Phone: 732-570-4943

No: 2-121313-112316-0006

Cooler #: 1 Lab: EMSL

Lab Phone: 858-303-2538

# ye	Sample #	Analyces	Matrix	Collecti	Collecti Collected	Samule	Numb	Container	Preservati	Area	Area	Vol	Lab
				on Method	-	Time	Cont	Cont	6A	Width	Length Units	Units	ပ္မ
	P0002-CR20-WP01-01	Asbestos TEM	Wipe	Grab	12/12/2013	15:32	-	Piastic Bag	None	10	10	cm	Z
	P0002-CR20-WP02-01	Asbestos TEM	Wipe	Grab	12/12/2013	15:33	-	Plastic Bag	None	\$	10 cm	cm	z
	P0002-CR20-WP03-01	Asbestos TEM	Wipe	Grab	12/12/2013	15:34	-	Plastic Bag	None	10	10	cm	Z,
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Special I	Special Instructions: 24 Hour TAT Preliminary Data. Email results to Carlos.Huertas@WestonSoluttons.com, Joel.Petty@WestonSolutfons.com, and S.Sumbaly@WestonSoltuions.com	ary Data, Email resi Sumbaly@WestonS	ults to Carlos.) oltuíons.com	⊣uertas@∖	WestonSolution	is.com		ō	CHAIN OF CUSTODY#	тору #		14	EMS MINS
												1	

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
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PHONE: (800) 220-3675 FAX: (856) 786-0235

December 20, 2013

Smita Sumbaly Weston Solutions 1090 King Georges Post Road Suite 201 Edison, NJ 08837 732-585-4400

Re: Narrative TEM ASTM 6480 041333720; RFP #: 272D, Site #:0029-0122

Dear Smita:

On December 14, 2013, EMSL Analytical, Inc. in Cinnaminson, NJ received twenty-one (21) wipe samples via overnight carrier from Weston Solutions for asbestos content analysis via TEM ASTM 6480. The samples were logged in following normal lab procedures. Samples were received under Chain of Custody and in good condition.

### TEM ASTM D6480

Samples are prepared by rinsing the sampling wipe and sample bag into a clean 500 mL specimen container. The specimen cup is filled with 400 mL of deionized water and the pH is adjusted to 3-4 with acetic acid. Once the desired pH is achieved the final volume is brought up to 500 mL. Multiple dilutions of each sample are filtered through a 47 mm MCE filtration apparatus. The filter is dried in a petri dish. A portion of the filter is prepared through a direct transfer technique. This technique requires the collapse of a filter wedge onto a microscope slide with hot acetone vapor. The collapsed filter is then etched to remove the top 5% of the filter and a thin layer of carbon deposited on the filter. The carbon coated filter is placed on top of a copper mesh TEM Grid and the filter polymer is wicked away in an acetone bath.

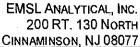
Samples were analyzed by Transmission Electron Microscopy (TEM) via ASTM D6480-05. All data was reported as structures per square centimeter. The target analytical sensitivity for these dust samples was 260 S/cm2. Due to excessive particulate the analytical sensitivity of 260 str/cm<sup>2</sup> as required by the method was not reached. An aspect ratio of  $\geq 5:1$  was applied.

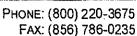
### Results

All samples associated with this EMSL order ID were analyzed via transmission electron microscopy (TEM) using procedures from TEM ASTM 6480. Analysis was performed on JEOL 100 CX II & JEOL 1200 EX microscopes at approximately 19,000X. Chrysotile was detected in samples P0002-CR23-WP02-01, P0002-CR23-WP03-01, P0002-CR24-WP03-01, P0002-CR25-WP01-01, P0002-CR25-WP01-01, P0002-CR25-WP01-01.

### **Quality Control Performed**









The Quality Control (QC) and equipment calibration was performed in compliance with EMSL's Quality Assurance Manual. One (1) blank, one (1) intra-analyst, and one (1) inter-analyst QC samples were analyzed. All QC results presented within this package were found to be concordant.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. In addition, I certify, that to the best of my knowledge and belief, the data as reported are true and accurate. Release of the data contained in this data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Robyn Denton

Asbestos Special Projects Manager

EMSL Cinnaminson, NJ



### 2. Tabulated Sample Results



Attn: Smlta Sumbaly

Suite 201

Edison, NJ 08837

### EMSL Analytical, Inc.

**Weston Solutions (King Georges Post)** 

200 Route 130 North, Cinnaminson, NJ-08077

Phone/Fax: (800) 220-3675 / (856) 786-5974

http://www.EMSL.com cinnasblab@EMSL.com

Phone:

(732) 585-4400

Fax:

Received: Analysis Date: 12/14/13 11:30 AM

EMSL Order:

CustomerID:

CustomerPO:

ProjectID:

041333720

RFWE53

0084577

**RFP 272D** 

12/18/2013

Collected:

12/13/2013

Project: Site #: 0029-0122, RFP #: 272D

1090 King Georges Post Road

### Test Report: Asbestos Analysis of Wipe Samples Using Method ASTM 6480

SAMPLE ID	AREA SAMPLED (cm²)	ASBESTOS TYPE	ASBESTOS STRUCTURES	Sensitivity (str/cm²)	CONCENTRATION (str/cm²)	COMMENTS
FB1-121313		None Detected	<2.99			Blank
041333720-0001		-				•
P0002-CR21- WP01-01 041333720-0002	100	None Detected	<2.99	485	<1450	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.
P0002-CR21- WP02-01 041333720-0003	100	None Detected	<2.99	485	<1450	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.
P0002-CR21- WP03-01 041333720-0004	100	None Detected	<2.99	485	<1450	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.
P0002-CR22- WP01-01 041333720-0005	100	None Detected	<2.99	970	<2900	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.
P0002-CR22- WP02-01 041333720-0006	100	None Detected	<2.99	485	<1450	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.
P0002-CR22- WP03-01 041333720-0007	100	None Detected	<2.99	970	<2900	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.
P0002-CR23- WP01-01 041333720-0008	100	None Detected	<2.99	970	<2900	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.
P0002-CR23- WP02-01 041333720-0009	100	Chrysotile	<2.99	970	<2900	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.
P0002-CR23- WP03-01 041333720-0010	100	Chrysotile	53	4850	257000	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.

Analyst(s)

Dave Poitras (12) Ted Young (9)

Stephen Siegel, ClH, Laboratory Manager or other approved signatory

EMSL maintains liability to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted.

Samples analyzed by EMSL Analytical, Inc. Chnaminson, NJ

Initial report from 12/18/2013 16:38:13

Test Report TEMMicro-7.21.0 Printed: 12/18/2013 4:38:13 PM



200 Route 130 North, Cinnaminson, NJ 08077 (800) 220-3675 / (856) 786-5974 Phone/Fax:

http://www.EMSL.com

cinnasblab@EMSL.com

EMSL Order:

041333720

CustomerID: CustomerPO: RFWE53 0084577

ProjectID:

RFP 272D

Attn: Smita Sumbaly

**Weston Solutions (King Georges Post)** 1090 King Georges Post Road

Suite 201

Edison, NJ 08837

Phone:

(732) 585-4400

Fax:

Received:

12/14/13 11:30 AM

Analysis Date:

12/18/2013

Collected:

12/13/2013

Project: Site #: 0029-0122, RFP #: 272D

### Test Report: Asbestos Analysis of Wipe Samples Using Method ASTM 6480

SAMPLE ID	AREA SAMPLED (cm²)	ASBESTOS TYPE	ASBESTOS STRUCTURES	Sensitivity (str/cm²)	CONCENTRATION (str/cm²)	COMMENTS
P0002-CR24- WP01-01 041333720-0011	100	None Detected	<2.99	485	<1450	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.
P0002-CR24- WP02-01 041333720-0012	100	Chrysotile	8	970	7760	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.
P0002-CR24- WP03-01 041333720-0013	100	Chrysotile	3	970	2910	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.
P0002-CR25- WP01-01 041333720-0014	100	Chrysotile	5	1940	9700	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.
P0002-CR25- WP02-01 041333720-0015	100	Chrysotile	9	1940	17500	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.
P0002-CR25- WP03-01 041333720-0016	100	Chrysotile	4	970	3880	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.
P0002-CR26- WP01-01 041333720-0017	100	Chrysotile	<2.99	485	<1450	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.
P0002-CR26- WP02-01 041333720-0018	100	None Detected	<2.99	485	<1450	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.
P0002-CR26- WP03-01 041333720-0019	100	None Detected	<2.99	485	<1450	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.

Analyst(s)

Dave Poitras (12) Ted Young (9)

Stephen Siegel, CIH, Laboratory Manager or other approved signatory

EMSL maintains liability to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of lest results are the responsibility of the client. Samples received in good condition unless otherwise noted.

Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ

Initial report from 12/18/2013 16:38:13

Test Report TEMMicro-7.21.0 Printed: 12/18/2013 4:38:13 PM



200 Route 130 North, Cinnaminson, NJ 08077

Phone/Fax: (800) 220-3675 / (856) 786-5974

http://www.EMSL.com cinnasblab@EMSL.com EMSL Order:

041333720

CustomerID: CustomerPO: RFWE53

ProjectID:

0084577 **RFP 272D** 

Attn: Smita Sumbaly

**Weston Solutions (King Georges Post)** 1090 King Georges Post Road

Suite 201

Edison, NJ 08837

Phone:

(732) 585-4400

Fax:

12/14/13 11:30 AM

Analysis Date:

12/18/2013

Collected:

Received:

12/13/2013

Project: Site #: 0029-0122, RFP #: 272D

### Test Report: Asbestos Analysis of Wipe Samples Using Method ASTM 6480

SAMPLE ID	AREA SAMPLED (cm²)	ASBESTOS TYPE	ASBESTOS STRUCTURES	Sensitivity (str/cm²)	CONCENTRATION (str/cm²)	COMMENTS
P0002-CR28- WP01-01 041333720-0020	100	None Detected	<2.99	485	<1450	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.
P0002-CR28- WP02-01 041333720-0021	100	None Detected	<2.99	485	<1450	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.

Analyst(s)

Dave Poitras (12) Ted Young (9)

Stephen Siegel, CIH, Laboratory Manager or other approved signatory

EMSL maintains flability to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted.

Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ

Initial report from 12/18/2013 16:38:13

Test Report TEMMicro-7.21.0 Printed: 12/18/2013 4:38:13 PM

THIS IS THE LAST PAGE OF THE REPORT.

041333790

DataShipped: 12/13/2013

Page 1 of 2

RFP# 272D PO# 0084577

CHAIN OF CUSTODY RECORD

Contact Name: Joel Petty Contact Phone: 732-570-4943 Site #: 0029 - 0122

No: 2-121313-112434-0007 Cooler #: 1

Lab: EMSt.

Lab Phone: 858-303-2538

				17-11-0	O. Hankard	Samuel A	Nimb	Numb Container	Preservati	Area	Area	<u> </u>	Lab
Lab #	Sample #	Analyses	Matrix			Time	0 1 1 2 3		9	Width	Length Units	Units	ၓွ
			,	Method									
	F04 404040	Acheetoe TEM	Wine	Gab	12/13/2013	08:30	-	Plastic Bag	None	0	0	မွ	z
	FB1-121313	Ashestos TEM	Wipe	Grab	12/12/2013	15:38	-	Plastic Bag	None	10	10	Ę	z
	FOUR-CAZI-WEOI-51	Achostoc TEM	Miss.	£	12/12/2013	15:39	-	Plastic Bag	None	10	10	ш	z
	FUUUZ-CKZ I-W FUZ-U I	Ashootes TELL	14/Po	de C	12/12/2013	15:40		Plastic Bag	None	9	10	ωs	_ '  2
	P0002-CR21-WP03-01	Asidesida I Eriki	R	3 0	10/10/00/3	15.45	-	Plactic Ban	None	10	10	E	z
	P0002-CR22-WP01-01	Asbestos TEM	ediw	Grab	12/12/2013	13.43	-	Social Control of the		Ş	4	Ę	2
	P0002-CR22-WP02-01	Asbestos TEM	Wipe	Grab	12/12/2013	15:46	-	Plastic Bag	None	2	2 5	3	2   2
	P0002-CR22-WP03-01	Asbestos TEM	Wipe	Grab	12/12/2013	15:47	1	Plastic Bag	None	9	10	Ę	2
	P0002-CR23-WP01-01	Asbestos TEM	WIpe	Grab	12/12/2013	16:17	+	Plastic Bag	None	9	10		z
	P0002-CR23-WP02-01	Asbestos TEM	Wipe	gusp	12/12/2013	16:18	-	Plastic Bag	None	2	9		z
	B0002-CB23-WP03-01	Aspestos TEM	Wbe	Grab	12/12/2013	16:19	-	Plastic Bag	None	10	9	Ę	<b>z</b>
	B0002 CB24-WB01-01	Ashestos TEM	Wipe	Grab	12/12/2013	16:09	-	Plastic Bag	None	9	9	70 E	z' Z
	B0002 CB24.WB02-01	Asbestos TEM	80 M	Grab	12/12/2013	16:10	-	Plastic Bag	None	10	9	} E	z
	POOD2-CR24-WP03-01	Asbestos TEM	Wibe	Grab	12/12/2013	16:11	-	Plastic Bag	None	10	9	图	z
	P0002-CR25-WP01-01	Asbestos TEM	ed ∧	Grab	12/13/2013	08:28	1	Plastic Bag	None	9	9	E	i Z
	P0002-CR25-WP02-01	Asbestos TEM	ed M	Grab	12/13/2013	08:29	-	Plastic Bag	None	9	9	<u>ا</u> ق	.   . z   z
	P0002-CR25-WP03-01	Asbestos TEM	Wipe	Grab	12/13/2013	08:30	-	Plastic Bag	None	9		ر ا	•
	P0002-CR26-WP01-01	Asbestos TEM	Wipe	Grab	12/13/2013	09:03	-	Plastic Bag	None	2		5	2 2
	P0002-CR26-WP02-01	Asbestos TEM	Wipe	Grab	12/13/2013	09:04	-	Plastic Bag	None	2	2	u <sub>D</sub>	2
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								Š	SAMPLES TRANSFERRED FROM	NSFERRE	D FROM	0	,
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Special Instruction Joel, Petty@Westr	Special Instructions: 24 Hour TAT Preliminary Data. Email results to Carlos Joel, Petty@WestonSolutions.com	ssuits to Carlos. Huertas@WestonSolutions.com, Soltuions.com	estonSolutions.com,	CHAIN OF CUSTODY#	# <i>\</i>
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	- Company of the Comp		51 HI E1 40211-XJ-8006	N.01 4	51



041333720

Page 2 of 2

USEPA

DateShipped: 12/13/2013 RFP# 272D PO# 0084577

CHAIN OF CUSTODY RECORD Slte #: 0029 - 0122

Contact Name: Joel Petty Contact Phona: 732-570-4943

No: 2-121313-112434-0007

Lab: EMSL

Lab Phone: 858-303-2538

Lab#	Sample #	Analyses	Matrix	Collecti on Method	Collecti Collected on Method	Sample Time	Numb	Numb Container Cont	Preservati ve	Area		Vol	38 38
	P0002-CR26-WP03-01	Asbestos TEM	Wipe	Grab	12/13/2013	90:60	-	Plastic Bag	None	5	2	E	z
	P0002-CR28-WP01-01	Asbestos TEM	Wipe	Grab	12/13/2013	60:60	-	Plastic Bag	None	5	5	Ę	z
	P0002-CR28-WP02-01	Asbestos TEM	Wipe	Grab	12/13/2013	09:10	-	Plastic Bag	None	<del>6</del>	\$	шo	z
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								S	SAMPLES TRANSFERRED FROM	NSFERRE	D FROM	<u>.</u>	
Special	instructions: 24 Hour TAT Prelim	nary Data. Email resi	ults to Carlos.	Huertas@\	VestonSolution	mossc m		ا ا	CHAIN OF CUSTODY #	TODY#		b	
Joel Pet	Joel. Petty@WestonSolutions.com, and S.Sumbaly@WestonSoltulons.com	.Sumbaly@WestonS	oltuions.com	I			,	•		,	,		

Items/Reason	Relinguished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
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PHONE: (800) 220-3675 FAX: (856) 786-0235

December 20, 2013

Smita Sumbaly Weston Solutions 1090 King Georges Post Road Suite 201 Edison, NJ 08837 732-585-4400

Re: Narrative TEM ASTM 6480 041333718; RFP #: 272D, Site #:0029-0122

Dear Smita:

On December 14, 2013, EMSL Analytical, Inc. in Cinnaminson, NJ received five (5) wipe samples via overnight carrier from Weston Solutions for asbestos content analysis via TEM ASTM 6480. The samples were logged in following normal lab procedures. Samples were received under Chain of Custody and in good condition.

### TEM ASTM D6480

Samples are prepared by rinsing the sampling wipe and sample bag into a clean 500 mL specimen container. The specimen cup is filled with 400 mL of deionized water and the pH is adjusted to 3-4 with acetic acid. Once the desired pH is achieved the final volume is brought up to 500 mL. Multiple dilutions of each sample are filtered through a 47 mm MCE filtration apparatus. The filter is dried in a petri dish. A portion of the filter is prepared through a direct transfer technique. This technique requires the collapse of a filter wedge onto a microscope slide with hot acetone vapor. The collapsed filter is then etched to remove the top 5% of the filter and a thin layer of carbon deposited on the filter. The carbon coated filter is placed on top of a copper mesh TEM Grid and the filter polymer is wicked away in an acetone bath.

Samples were analyzed by Transmission Electron Microscopy (TEM) via ASTM D6480-05. All data was reported as structures per square centimeter. The target analytical sensitivity for these dust samples was 260 S/cm2. Due to excessive particulate the analytical sensitivity of 260 str/cm<sup>2</sup> as required by the method was not reached. An aspect ratio of  $\geq 5:1$  was applied.

### Results

All samples associated with this EMSL order ID were analyzed via transmission electron microscopy (TEM) using procedures from TEM ASTM 6480. Analysis was performed on JEOL 100 CX II & JEOL 1200 EX microscopes at approximately 19,000X. Chrysotile was detected in all field samples.

### **Quality Control Performed**

The Quality Control (QC) and equipment calibration was performed in compliance with EMSL's Quality Assurance Manual. One (1) blank and one (1) inter-analyst QC samples were analyzed. All QC results presented within this package were found to be concordant.





EMSL ANALYTICAL, INC. 200 RT. 130 NORTH CINNAMINSON, NJ 08077.

PHONE: (800) 220-3675 FAX: (856) 786-0235

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. In addition, I certify, that to the best of my knowledge and belief, the data as reported are true and accurate. Release of the data contained in this data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Robyn Denton

Asbestos Special Projects Manager EMSL Cinnaminson, NJ

0060



### 2. Tabulated Sample Results



200 Route 136 North, Cinnaminson, NJ 08077 Phone/Fax: (800) 220-3675 / (856) 786-5974

http://www.EMSL.com

EMSL Order: CustomeriD: 041333718 RFWE53

CustomerPO: ProjectID:

0084577 **RFP 272D** 

Attn: Smita Sumbaly

**Weston Solutions (King Georges Post)** 1090 King Georges Post Road Suite 201

Edison, NJ 08837

Phone:

(732) 585-4400

Fax:

12/14/13 11:30 AM

Analysis Date:

12/18/2013

Collected:

Received:

12/13/2013

Project: Site #: 0029-0122, RFP #: 272D

### Test Report: Asbestos Analysis of Wipe Samples Using Method ASTM 6480

SAMPLE ID	AREA SAMPLED (cm²)	ASBESTOS TYPE	ASBESTOS STRUCTURES	Sensitivity (str/cm²)	CONCENTRATION (str/cm²)	COMMENTS
FB2-121313 041333718-0001		None Detected	<2.99			Blank
P0002-CR28- WP03-01 041333718-0002	100	Chrysotile	10	485	4850	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.
P0002-CR29- WP01-01 041333718-0003	100	Chrysotile	10	1940	19400	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.
P0002-CR29- WP02-01 041333718-0004	100	Chrysotile	8	485	3880	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.
P0002-CR29- WP03-01 041333718-0005	100	Chrysotile	3	485	1460	Due to excessive particulate the analytical sensitivity of 260 str/cm² as required by the method was not reached.

Analyst(s)

Debbie Little (4) Ted Young (1)

Stephen Siegel, ClH, Laboratory Manager or other approved signatory

EMSL maintains liability to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSt. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted.

Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ

Initial report from 12/18/2013 14:09:35

Test Report TEMMicro-7.21.0 Printed: 12/18/2013 2:09:35 PM

THIS IS THE LAST PAGE OF THE REPORT.

04(333718

Page 1 of 1

USEPA

DeteShipped: 12/13/2013 RFP# 272D PO# 0084577

CHAIN OF CUSTODY RECORD

Site #; 0029 - 0122

Contact Phone; 732-570-4943 Contact Name: Joal Patty

No: 2-121313-112542-0008 Cooler #: 1 Lab: EMSL

Lab Phone; 858-303-2538

# ye	Sample #	Analyses	Matrix	Collect	Collect Collected	Sample		Container	Preservati	Area	Area	ا ا د	를 2 조
		•		Mathod		Time	Cont		\$	Width	Length		3
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	FBZ-121313	Ashestes TEAK	Wine	1	12/13/2013	09:11		Plastic Bag	Nona	10	10 cm	E C	z
	PUDUZ-CRZO-WPUS-UI	Aspertor TEM	Wind	9	12/13/2013	09:13	-	Plastic Bag	Nona	10	10 cm	cm	z
	FUNDE-CRES-WIFUI-01	And a second	14/ing	400	12/13/2013	09-14	٠	Plastic Bag	None	5	10 cm	E	z
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Items/Reason	Relinquished by	Refindulshed by (Signature and Organization)	Dete/Time	Received by (a ginal de a lu Olganization)		
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### 7. NVLAP/AIHA Certifications



## AIHA Laboratory Accreditation Programs, LLC

acknowledges that

### EMSL Analytical, Inc.

200 Route 130 North, Cinnaminson, NJ 08077

Laboratory ID: 100194

along with all premises from which key activities are performed, as listed above, has fulfilled the requirements of the AIHA Laboratory Accreditation Programs (AIHA-LAP), LLC accreditation to the ISO/IEC 17025.2005 international standard, General Requirements for the Competence of Testing and Calibration Laboratories in the following:

### LABORATORY ACCREDITATION PROGRAMS

INDUSTRIAL HYGIENE

**ENVIRONMENTAL LEAD** 

ENVIRONMENTAL MICROBIOLOGY

Accreditation Expires: 07/01/2014

Accreditation Expires: 07/01/2014 Accreditation Expires: 07/01/2014

Accreditation Expires:

17025.2005 and AIHA-LAP, LLC requirements. This certificate is not valid without the attached Scope of Accreditation. Please review the AIHA-Specific Field(s) of Testing (FoT)/Method(s) within each Accreditation Program for which the above named laboratory maintains accreditation is outlined on the attached Scope of Accreditation. Continued accreditation is contingent upon successful on-going compliance with ISO/IEC They of Thaten LAP, LLC website (www.aihaaccreditedlabs.org) for the most current Scope.

Managing Director, AIHA Laboratory Accreditation Programs, LLC Cheryl O. Morton

Chairperson, Analytical Accreditation Board S. D. Allen Iske, PhD, CIH, CSP

a transfer or an executa

Revision 12: 03/29/2012

Date Issued: 07/31/2012



### AIHA Laboratory Accreditation Programs, LLC SCOPE OF ACCREDITATION

EMSL Analytical, Inc.

200 Route 130 North, Cinnaminson, NJ 08077

Laboratory ID: 100194
Issue Date: 07/31/2012

The laboratory is approved for those specific field(s) of testing/methods listed in the table below. Clients are urged to verify the laboratory's current accreditation status for the particular field(s) of testing/Methods, since these can change due to proficiency status, suspension and/or revocation. A complete listing of currently accredited Industrial Hygiene laboratories is available on the AIHA-LAP, LLC website at: <a href="http://www.aihaaccreditedlabs.org">http://www.aihaaccreditedlabs.org</a>

### Industrial Hygiene Laboratory Accreditation Program (IHLAP)

Initial Accreditation Date: 02/01/1989

IHLAP Scope Category	Field of Testing (FoT)	Technology sub-type/ Detector	Published Reference Method/Title of In-house Method	Method Description or Analyte (for internal methods only)
			NIOSH 1003	
			NIOSH 1005	
			NIOSH 1400	
		GC/ FID	NIOSH 1500	
			NIOSH 1550	
	Coo Charamata ananha		NIOSH 1603	, .
	Gas Chromatography		NIOSH 2000	
			NIOSH 5502	
		COVECE	NIOSH 5503	
Chromatography Core		GC/ECD	NIOSH 5510	
			OSHA 1010	
		GC/NPD	NIOSH 2551	
	GC/MS		EPA TO-15	
	Gas Chromatography (Diffusive Samplers)		NIOSH 1501	
1			NIOSH 6004	
	To- Characte annulus		NIOSH 6011	
	Ion Chromatography (IC)		NIOSH 7903	
]	(ic)	] .	OSHA ID-214	
			OSHA ID-215	
<u> </u>	Liquid	HPLC/FL	NIOSH 5506	
	Chromatography	HPLC/UV	NIOSH 2016	

Effective: 09/28/2011 Scope\_IHLAP\_R6 Page 1 of 2



IHLAP Scope Category	Field of Testing (FoT)	Technology sub-type/ Detector	Published Reference Method/Title of In-house Method	Method Description or Analyte (for internal methods only)
			NIOSH 6009	
		CVAA	OSHA ID-145	SOP LM-015
	Atomic Absorption		OSHA ID-145	SOP LM-013
	·	FAA	NIOSH 7082	·
		GFAA	NIOSH 7105	
Spectrometry Core	Inductively-Coupled	ICP/MS	NIOSH 7300 Modified	
	Plasma	ICP/AES	NIOSH 7300	
	X-ray Diffraction		NIOSH 7500	
	(XRD)		OSHA ID-142	
	UV/VIS (Colorimetric)		NIOSH 6010	
	Polarized Light Microscopy (PLM)		EPA 600/R-93/116	
Asbestos/Fiber	Phase Contrast Microscopy (PCM)		NIOSH 7400	
Microscopy Core	Transmission Electron		EPA AHERA - 40 CFR Part 763	
	Microscopy (TEM)	1	NIOSH 7402	
			NIOSH 0500	
	Gravimetric		NIOSH 0600	
Miscellaneous Core			NIOSH 5524	
. ,	Thermo-optical Analysis (TOA)		NIOSH 5040	

The laboratory participates in the	following AIHA-LAP, LLC-approved profi	inianou tostina programa:
The languages in the	lonowing Alma-Lar. LLC-approved prof	iciency testing programs:

- ✓ AIHA-PAT Programs, LLC IHPAT Metals
- ✓ AIHA-PAT Programs, LLC IHPAT Organic Solvents
- ✓ AIHA-PAT Programs, LLC IHPAT Silica
- ✓ AIHA-PAT Programs, LLC IHPAT Diffusive Sampler (3M)
- ☐ AIHA-PAT Programs, LLC IHPAT Diffusive Sampler (SKC)
- AIHA-PAT Programs, LLC IHPAT Diffusive Sampler (AT)
- ✓ AIHA-PAT Programs, LLC IHPAT Asbestos
- AlHA-PAT Programs, LLC Bulk Asbestos (BAPAT)
- AIHA-PAT Programs, LLC Beryllium (BePAT)
- ✓ HSE Workplace Analytical Scheme for Proficiency (WASP) (Formaldehyde)
- HSE Workplace Analytical Scheme for Proficiency (WASP)
  (Thermal Desorption Tubes)

- ☐ Pharmaceutical Round Robin
- Compressed/Breathing Air Round Robin
- ✓ National Voluntary Laboratory Accreditation Program (NVLAP - determined at the time of site assessment)
- New York State Department of Health (NYS DOH PCM and TEM)
- ✓ ERA Air and Emissions standards for indoor air quality
- Institut für Arbeitsschutz der Deutschen Gesetzlichen Unfallversicherung (IFA, formerly BGIA)
- ☐ Institut de Recherche Robert-Sauvé en Santé et en Sécurité du Travail (IRSST)

Effective: 09/28/2011 Scope\_IHLAP\_R6 Page 2 of 2

# Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 101048-0

### EMSL Analytical, Inc.

Cinnaminson, NJ

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, isted on the Scope of Accreditation, for:

# AIRBORNE ASBESTOS FIBER ANALYSIS

This accreditation demonstrates technical competence for a defined scope and tha operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqua dated January 2009). This laboratory is accredited in accordance with the recognized Intarnational Standard ISO/IEC 17025.2005.



M-D-MIC

For the National Institute of Standards and Technology

NVLAP-01C (REV. 2008-01-28)

2013-07-01 through 2014-06-30

Effective dates



### National Voluntary Laboratory Accreditation Program



### SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

EMSL Analytical, Inc.

200 Route 130 North

Cinnaminson, NJ 08077

Mr. Stephen Siegel, CIH

Phone: 800-220-3675 Fax: 856-786-5973

E-Mail: ssiegel@emsl.com URL: http://www.emsl.com

### AIRBORNE ASBESTOS FIBER ANALYSIS (TEM)

**NVLAP LAB CODE 101048-0** 

NVLAP Code Designation / Description

18/A02 U.S. EPA's "Interim Transmission Electron Microscopy Analytical Methods-Mandatory and

Nonmandatory-and Mandatory Section to Determine Completion of Response Actions" as

found in 40 CFR, Part 763, Subpart E, Appendix A.

2013-07-01 through 2014-06-30

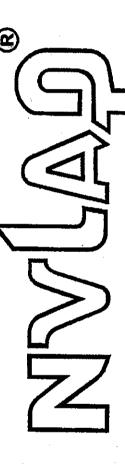
Effective dates

Main R. Mall

For the National Institute of Standards and Technology

Page 1 of 1

NVLAP-01S (REV. 2005-05-59)



# Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 101048-0

### EMSL Analytical, Inc.

Cinnaminson, NJ

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:

## BULK ASBESTOS FIBER ANALYSIS

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).

2013-07-01 through 2014-06-30

Effective dates



M- D. M.L.D

For the National Institute of Standards and Technology

NVLAP-01C (REV. 2009-01-28)



### National Voluntary Laboratory Accreditation Program



### SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

EMSL Analytical, Inc. 200 Route 130 North Cinnaminson, NJ 08077 Mr. Stephen Siegel, CIH

Phone: 800-220-3675 Fax: 856-786-5973

E-Mail: ssiegel@emsl.com URL: http://www.emsl.com

### **BULK ASBESTOS FIBER ANALYSIS (PLM)**

**NVLAP LAB CODE 101048-0** 

NVLAP Code Designation / Description

18/A01 EPA 600/M4-82-020: Interim Method for the Determination of Asbestos in Bulk Insulation

Samples

18/A03 EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

2013-07-01 through 2014-06-30

Effective dates

Mi R. Mill

For the National Institute of Standards and Technology

NVLAP-01S (REV. 2005-05-99)



### 8. Customer Correspondence